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## DISTRIBUTION OF THE MOCKINGBIRD IN CALIFORNIA.

BY JOSEPH GRINNELL.<sup>1</sup>

*With map.*

PROBABLY the passerine bird most favorably and extensively known to the people of California is the Western Mockingbird (*Mimus polyglottos leucomelas*). This species has earned its reputation by its song of extraordinary loudness and persistency, so that more than any other native bird of the same habitat has it impressed its hearers with its presence. The occurrence of the Mockingbird is associated in the popular mind with the orange groves of southern California. The following distributional study shows this idea to be based upon a good deal of fact.

The northernmost known occurrence of the Mockingbird in California is in the upper Sacramento Valley, a little below the 40th parallel of latitude: An individual is recorded as having been observed at Chico, Butte County, February 10, 1884 (Belding, Land Birds Pac. Dist., Sept., 1890, p. 226). Next south of this point its presence has been noted at Gridley, Butte County, July 22, 1885 (Belding, *l. c.*). At Marysville, Yuba County, and Marysville Buttes, Sutter County, the Mockingbird was formerly found nesting (Belding, Proc. U. S. Nat. Mus., I, 1879, p. 396; Belding, Land Birds Pac. Dist., Sept., 1890, p. 226). The above four records

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<sup>1</sup> A contribution from the Museum of Vertebrate Zoölogy of the University of California.

are all we have from the Sacramento Valley, and since recent inquiry of persons living in that region has failed to elicit positive evidence of its occurrence there at the present time, it is fair to conclude that the species has not found the conditions sufficiently congenial to bring about its establishment there as a regular component of the avifauna. (See Map.)

Continuing to the southward in central California, Stockton is the next record station. Here the bird has been observed in both winter and summer, though in small numbers (Belding, *l. c.*). In the foothills of Calaveras County (Big Trees and Copperopolis) it has been noted rarely (Belding, *l. c.*). From the vicinity of Merced south through the San Joaquin Valley to the region about Bakersfield, the Mockingbird is well known as a common resident and breeding species in favorable places; and as the plains are being reclaimed for orchards and ranches, the range of the Mockingbird is enlarging and covering the region more continuously. On the east side of the valley, next to the foothills, the conditions are apparently most favorable. This general information has been gathered from several separate and reliable sources.

While record stations would appear to show a continuity of breeding range from the San Joaquin area through the Tehachapi and Walker passes to the Mojave Desert, it is not at all certain that this is the case. It is not apparent from the literature at hand whether records are of birds actually nesting, or of mere stragglers. If the latter, their significance is not important in this connection.

It is quite certain that portions of the breeding range of the Mockingbird, even within California, are wholly disconnected from others. This is obviously true in the case of Santa Cruz, Santa Catalina and San Clemente Islands, on each of which the species is known to breed. Although occurring on these islands in winter as well as in summer, it is not safe to assert that individuals do not pass back and forth between islands, and from the islands to the mainland. This crossing is certainly but little less to be expected than the apparent wintering on the Mojave and Colorado deserts of individuals which summer a hundred or more miles distant in the Panamint and adjacent mountains. No differences have been detected between specimens of the Mockingbird from different portions of its range in California, even those from the islands

being indistinguishable from examples from the San Diegan district and from the deserts.

The distribution of the Mockingbird *east* of the Sierran divide is evidently modified more by season than is the case anywhere on the Pacific slope of California. It would appear from a consideration of all the records of the species so far available that it occurs in summer chiefly if not altogether on the slopes of the mountains, dropping into the adjacent valleys in winter, and at that season even extending, in small numbers, by a veritable migratory movement, south over the Mojave Desert.

The northernmost record east of the Sierras is from the heads of Owens River and Owens Valley, about latitude  $37^{\circ} 40'$  (Fisher, N. Am. Fauna, No. 7, May, 1893, p. 127). Thence south through Owens Valley and along the ranges to the eastward there are a number of summer records. Though observed in Death Valley in January and April, not a single one was found there in June (Fisher, *l. c.*).

No positive information is at hand indicating that the species breeds in the lowest and hottest parts of the southwestern deserts, where, however, it occurs in winter. Exploration along the valley of the lower Colorado River by the expedition of the Museum of Vertebrate Zoölogy in 1910 showed the Mockingbird to be common there from February to April; but there were no indications that the individuals were about to nest in the region. On the contrary everything pointed towards their being winter visitants from a breeding area elsewhere.

The only record-station in the coast region north of San Francisco Bay is San Geronimo, Marin County. Mailliard (Auk, XV, April, 1898, p. 197) records a male specimen taken there December 30, 1894. In the coast region south of San Francisco Bay, beginning at the north, we have the following records. Redwood City: specimen taken September 5, 1891; "rarely seen here; I have met with but three others during the past twenty-five years" (Littlejohn, Zoe, III, Jan., 1893, p. 362). Stanford University: male specimen secured February 17, 1893 (Van Denburgh, Proc. Am. Philos. Soc., XXXVIII, Nov., 1899, p. 177); individual seen December 20, 1904, and "for a week or two subsequently" (Fisher, Condor, VII, March, 1905, p. 55). Haywards, Alameda County:

November 28, 1888, and for a month or so thereafter, one individual; October, 1894, to April, 1895, one individual continuously; November, 1895, one individual; November 2, 1896, to spring of 1897, one individual all winter (Emerson, Bull. Cooper Orn. Club, I, March, 1899, p. 27); November, 1904, to March 4, 1905, one individual all winter (Emerson, Condor, VIII, March, 1906, p. 51). Watsonville, Santa Cruz County: specimen taken September 17, 1903 (Hunter, Condor, VI, Jan., 1904, p. 25). Paicines, San Benito County, "sparingly winter resident" (Mailliard, Condor, III, Sept., 1901, p. 126). Salinas Valley, "near Monterey," in small numbers (Cooper, Orn. Calif., 1870, p. 21). Paso Robles, San Luis Obispo County, "quite a number" in winter; one pair known to have nested; thought to be increasing (Thompson, Condor, II, July, 1900, p. 89). San Simeon, San Luis Obispo County, one seen July 20, 1905 (Jenkins, Condor, VIII, Sept., 1906, p. 129). Wasioja, Santa Barbara County, seen in December, 1909 (Rowley, MS).

The last three records are the southernmost in the central coast region of California, that is, in the region north of Santa Barbara. Paso Robles is the only breeding station known to me in all that area. This point being in the southern Salinas Valley and separated from the coast belt proper by a mountain range, probably possesses climatic features most nearly like those due east in the parallel valley of the San Joaquin. It will have been noted that all the rest of the records are for fall and winter birds. This would appear to indicate a slight migration west-and-east from the San Joaquin Valley, possibly involving birds-of-the-year only. Originally the Mockingbird of California was probably distinctly migratory; those lines of descendants finding themselves in the areas of most equable climate have come to a standstill. This would appear to me to be more probable than that the traces of migration observable at the present time are the beginnings of a general migratory habit which may become established in the future. It is notable that as a rule records farthest away from the normal breeding range, even the northernmost, are of fall and winter occurrences.

From Santa Barbara southeastward throughout the San Diegan faunal district the Mockingbird is well known as an abundant

breeding species and permanent resident. It is in this San Diegan district, more particularly about suburban gardens and citrus orchards, that the species appears to thrive better than elsewhere in California. Moreover, the bird is becoming more and more abundant as the region is brought into a higher state of cultivation. In Los Angeles County during the past twenty years I have witnessed the continued increase both in its numbers and the area inhabited by it.

Originally a bird of the wide, open "wash," or arroyo, sparsely dotted with small live oaks, clumps of elder and sumach, and patches of prickly-pear cactus, the Mockingbird has now come to be the most conspicuous avian tenant of the highly cultivated orchard and garden. The original habitat of the bird, to which it was restricted, is of scarcely less extent now than formerly; and Mockingbirds are still to be found there in numbers which appear to me not materially greater or less than twenty years ago. But an area of several times this extent, which was formerly either bare grass-land or else thickly covered with chaparral, and in either case at that time unoccupied by the Mockingbird, has now been altered by cultivation until it evidently affords an attractive and permanent abode. Many an area in the vicinity of Pasadena, where fifteen years ago such birds as Horned Larks, Meadowlarks, Lark Sparrows and Burrowing Owls abounded, now know these species no more; but the Mockingbird is in evidence in every block. As a specific instance, all that area of North Pasadena between Monk Hill and Devil's Gate was once pasture land or at best a grain field, where I never saw a Mockingbird. A recent drive through the same section, now a populous suburb, disclosed the presence of the Mockingbird in numbers.

The Mockingbird is accordingly one of the relatively few species of birds which have not only withstood the effects of cultivation, but which have notably increased as a result of it. In looking over a map of the Pacific slope of Los Angeles County, knowing as I do the local conditions both now and formerly in much of that area, I believe I am conservative in estimating that the Mockingbird now occupies five times the area that it originally did. In other words there are now fully five times as many Mockingbirds in the region as formerly. I believe similar conditions to hold

true with regard to many other parts of the San Diegan faunal district.

The so-called citrus belt seems to be the metropolis of the Mockingbird. The citrus belt lies in a portion of the Lower Sonoran zone possessing a semi-arid climate, and in which, although the summers are hot, the annual range of temperature downward is not so great as to bring killing frosts. A law was long ago formulated by C. H. Merriam (Nat. Geog. Mag., VI, 1894, p. 236) to the effect that the northward distribution of animals and plants is determined by the sum of the positive temperatures for the entire season of growth and reproduction, and that the southward distribution is governed by the mean temperature of a brief period during the hottest part of the year. The range of the Mockingbird appears to be accounted for under the first portion of this law, though not altogether. The bird is of Austral origin, and in California is but slightly or not at all migratory. The upward extension of its breeding range is clearly limited by the temperature conditions obtaining for a large portion of the year, including the summer, at the upper edge of the Lower Sonoran zone. Its winter range is the same except (1) that there is a scattering movement of birds-of-the-year in the autumn, leading to their appearance during the early winter in the warmer central coast belt of California; and (2) that there is a vertical movement in the Mojave Desert and Death Valley regions as an escape from the cold of the interior concomitant with altitude. It is doubtless the severity of the winter climate, in other words the normal dropping of the temperature below the freezing point, that accounts for the relative scarcity of Mockingbirds on the higher deserts of southeastern California, where Lower Sonoran conditions find their extreme in summer.

That food is not a prime factor in the case, as it clearly is in controlling the winter distribution of certain other birds, is shown by the fact that the Mockingbird is pre-eminently a berry-eater, especially throughout the fall and winter. On parts of the Mojave Desert mistletoe thrives and produces enormous crops of its berries which in other localities, namely those of warmer winters, form a favorite food of the Mockingbird. But this abundant food is still not a sufficient attraction to overbalance the repelling effect of the cold. Yet the latter is not sufficient to affect adversely other

berry-eating birds such as Western Bluebirds, Cedarbirds, and Solitaires, all these being species which summer in the Transition or Canadian zones.

The Mockingbird is clearly very sensitive to temperature. It must have warm summers, and warm winters as well. It is thus similar in its demands to the orange tree. The popular notion that it is by preference a bird of the orange grove, is based upon a coincidence in the ecologic requirements of the bird and the plant, and upon something more. While it does not appear that the Mockingbird depends at all on the citrus tree for food, yet it is a significant thing that the dense, stiff-twiggled foliage of the orange is most nearly like that of the small live-oak of the wash. And both these trees are preferred above all others as sites for the nests of the bird.

While the Mockingbird of California is not a regularly migratory species in any true sense, it is of interest to recognize the local and partial seasonal movement in west central California. There is an exodus in small numbers from the San Joaquin Valley into the coast belt for the winter, when the former area is colder than the latter; and the movement reverses in the spring when the former is hotter than the latter. There is thus a longitudinal shifting back and forth, though this involves only a fraction of the population of the interior valley; this residual seasonal movement is apparently due to shifting temperature conditions, again reflecting the sharply defined temperature requirements of the bird.

**SUMMARY.**—The Mockingbird is essentially a non-migratory species. It is restricted to a relatively small range in California because of its evident extreme sensitiveness to temperature. It adheres not merely to a zone of high summer temperature as do many other non-migratory birds, but to a small portion of that zone which also possesses a high winter temperature, above that of severe frost. This combination of suitable summer and winter conditions is found in the Lower Sonoran zone, in the San Diegan district of southern California (northwest to Santa Barbara), and in the bed of the San Joaquin Valley. Even in these restricted belts the Mockingbird exhibits still further preferences dependent upon plant association. It happens that the cultivated citrus orchard satisfies the bird's predilections as regards the native asso-

ciations. Also the citrus orchard coincides in its own seasonal temperature requirements with those of the Mockingbird. Hence we find the Mockingbird a characteristic inhabitant of the citrus belt; and, as the areas devoted to citrus culture increase, the Mimine population augments. It is estimated that Mockingbirds have increased five-fold, both in numbers and localities inhabited, since the settlement of the country. The Mockingbird is thus one of the few species which are responding favorably to intensive cultivation as the valleys of southern and central California become closely settled.

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#### DESCRIPTION OF A SPECIES OF *PROCELLARIA* WHICH IS FOUND AT THE NORTH POLE.<sup>1</sup>

BY ANTON ROLANDSON MARTIN, *Med. Stud.*

Translated by S. M. Gronberger.

THE shape of this bird is best seen from the figure, Tabula III. I take the liberty of making the description in Latin.

CAPUT subrotundum.

*Oculi* orbiculati, atri.

*Rostrum* longitudine capitis, laeve, subcompressum, gibbum.

*Mandibula* superior constans ossiculis quinque sutura connexis:

*Lateralia* duo lanceolata, margine laterali acuto extra mandibulam inferiorem; *Nasus* tubulosus subtruncatus, elevatus supra rostrum eoque dimidio brevior, subcarinatus, e duobus ossiculis.

*Nares* cordatae. *Apex* rostri quintum ossiculum constituens, a naribus spatio remotus, maxilla inferiore longior, gibbus, inflexus, aduncus, cultratus, acuminatus.

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<sup>1</sup> Beskrifning på en *Procellaria*, som finnes vid Norrpolen, in Kungl. Vetenskaps-Academiens Handlingar, för år 1759, Vol. XX, pp. 94-99, Stockholm, 1759.

This appears to be the earliest description of *Procellaria glacialis* Linn. extant, and although the author does not name the bird, there can be but little doubt as to its identity with the *Fulmarus glacialis glacialis*. This description also agrees with that of Linnaeus in 'Fauna Suecica,' Ed. 2, Stockholm, 1761, p. 51, where it is said: *unque postico absque digito. Nares constant unico cylindro. . . . mandibulis ex 5 ossiculis.*" (Translator.)

*Mandibula inferior* etiam e quinque ossiculis sutura connexis composita, quorum 2 marginalia linearia angusta, 2 inferiora laterali- bus parallela, lanceolata, canaliculata, apice deorsum vergentia, quintum *apicem* constituens latius, cordatum, adscendens, complicatum, brevius quam latum, obtusiusculum.

**COLUM** capite paulo longius.

**TRUNCUS** ovatus, epressiusculus, magnitudine Cornicis, plumis den- sissimis, praecipue subtus, tectus; pectore prominulo.

**ALAE** lanceolatae, cauda longiores, *Remigibus primoribus* 9 obtusiusculis, sensim versus exteriora longioribus; *secundariis* plurimis, bre- viusculis, laxioribus, obtusioribus.

**CAUDA** rotundata, pedibus fere brevior, Rectricibus circiter 16, obtusis.

**PEDES.** *Femora* supra genua nuda. *Tibiae* compressae. Plantae tridactylae, palmatae. *Ungues* acuminati, subarcuati, inter- mediis latere interiore marginatus; *Digitus* posticus nullus, sed ungvis conicus sessilis juxta plantam.

**COLOR.** *Dorsum* canum. *Remiges primores* a latere nudo fuscescentes. *Cauda* subcanescens. *Caput, Pectus regio Ani* albida. *Abdomen* cinereo-albicans. *Rostrum* fusco-incarnatum. *Oculi* nigri. *Pedes* incarnati.

#### REMARK.

This bird has so much in common with *Procellaria aequinoctialis*<sup>1</sup> that I am not sure whether it is a different species, or whether it<sup>1</sup> also differs with reference to age; because it is generally known that *Lari* [Gulls], with which this genus is most closely related, are, when young, mostly of a brown color, which in the second year is changed into white or gray. The single fact that seems of significance to me and which might be the surest indication of a difference, is that Mr. EDWARD [Edwards], who has so accurately depicted his birds, has in the other [the *P. aequinoctialis*], reproduced the nares as if composed of two distinct cylinders [tubes], which is not the case in this bird.

**SYNONYMA.** He has not been correctly described by any author; but occurs in several travellers' descriptions under the name of *Mallemuks*. Bishop Pontoppidan, in his 'Norges Naturlige Histori' [Natural History of Norway], mentions it only in Part II, page 144, and states he has heard nothing else of the bird than that Burgomaster Anderson referred to it in his accounts of Greenland and Davis Strait [Anderson Island, 173, n. 30].

<sup>1</sup> Italics by Transl

Mr. Anderson designates this bird as *Larus marinus maximus, ex albo, nigro & fusco varius, groenlandicus*.<sup>1</sup> See the same accounts, pag. 173.

It might not be out of place to quote briefly what the Burgo-master, on pag. 168, has to relate about the behavior of a live specimen which he had secured. The following is an extract of the account: "In the year 1753 I obtained a live Mallemuke; he knew how to act in both good and bad weather and always seemed to relish his food exceedingly well. He was very greedy of raw meat, and devoured entire fishes and large pieces of flesh; the food was quickly digested and he soon voided his excrements, whereupon his appetite immediately returned. He fought bravely with both cats and rats, etc., dealt out savage jabs with his big beak, and whenever he had secured a cat by the tail he treated it so roughly that it cried out for mercy; for this reason all such animals sought safety in flight when they caught sight of him. In the presence of man he was only shy, although not unreasonably so, but toward those who provided him with food he was tame and docile. I afterward brought the bird to an artist for the purpose of having a drawing made of it, and on this occasion he seemed to be in low spirits and did not desire to eat, but upon our return home he ran up to my coachman, who had often been kind to him, and acted as if glad of having returned to his old acquaintances. As often as he was teased with a piece of white cloth, the bird cried out sharp and loud."

#### FURTHER EXPERIENCE OF ITS PROPERTIES.

We first noticed these birds between 62 and 63 degrees north latitude, and they accompanied us by flying around the ship until we reached Spitzbergen, and even when we were as high as 79-80 degrees [north lat.]. Where no other living thing was to be seen, these birds were flying between the ice-floes. The bird is one of those which have been provided by the Almighty Creator to cleanse the sea from the dead and stinking carcasses of whales.

<sup>1</sup> The *Procellaria glacialis* of Linnaeus is based on this bird. (Vide supra.) See also Brünnich, Orn. Bor., No. 118, p. 29. His note, however, evidently refers to the *Procellaria capensis* = *P. aequinoctialis* (?), which seems to have been known prior to the *P. glacialis* Linn. (Translator.)

As soon as a whale fish [*sic*] is caught they arrive by the thousands (together with some other birds which I had not the good fortune of securing), alight on the carcass and, paying no heed either to cuts or blows, seize one piece after another and devour them with such a greed as almost to suffocate themselves. They have therefore also a belly-mouth (oesophagus) which, hanging like a bag, extends to the anum,<sup>1</sup> besides which they have only a few small intestines. Their stupid audacity renders them obnoxious and troublesome to the whalers, and for this reason they call the bird Mallemuke, which means a wicked or malicious Gull; therefore several boatswains are also stationed with their launches on either side of the whale, and these are also called Mallemuken, from the fact that it is their duty, beside handing knives and grindstones to the harpooners, to chase away the birds with their boat-hooks. In doing this they beat some of them to death in order to obtain for the ship's crew a refreshing soup called by them *Puspae*, which is made from the breast of this bird, boiled with rice. The breast is quite fleshy in consequence of the extended flights which they are obliged to make on the stormy sea [*i. e.*, from the great development of the pectoral muscles]. I seldom saw them in the water when the weather was stormy, but only when there was calm and quiet. They do not dive much, but fly high up in the air, and then again close to the surface of the water, should there happen to be anything washed up by the waves, or from the movement of the water caused by the ship.

They seldom come ashore except to lay their eggs, which is done on the uttermost islets of Spitzbergen, where an island has been named for them Mallemoeken-eyland.

Beneath the stomach, and inside the coarser feathers of this bird I found a cavity which was surrounded by small and fine down: it cannot be seen from without; but it is quite plain on the bird which I have mounted and from which the figure has been made.<sup>2</sup> Perhaps its eggs are hatched out beneath this cavity, and this presumably takes place in the naked rock-crevices; on June 7,

<sup>1</sup> Lat. acc., as in original. (Translator.)

<sup>2</sup> In Fabricius, O., *Fauna Groenlandica*, Hafniae, 1780, p. 86, the following reference to this "cavity" is made: "Aream deplumen sub abdomine etiam reperi."

at which time they are said to lay their eggs, I found this [cavity] in the bird.

They are well provided against the cold, as are all birds and animals [sic] that are found here. Close to the body they have a pretty fine down, like silk: outside of this there are quite thick feathers. Their skin is interiorly lined with fat, and I must not omit to state the fact that all of their intestines, vasa, blood vessels and nerves were quite as distinct as in the larger animals. It was therefore a matter of small wonder to me that they were so hard to kill whenever an attempt was made in that direction.

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LIST OF BIRDS OBSERVED IN ESTES PARK, COLORADO, FROM JUNE 10 TO JULY 18, 1910.

BY OTTO WIDMANN.

THE name Estes Park, called after its first settler, Joel Estes, October, 1859, is given to a beautiful region in Larimer County, north central Colorado, Lat.  $40^{\circ} 24'$  north, Long.  $105^{\circ} 30'$  west. The park is twenty miles long from east to west and fifteen miles wide from north to south. Estes village is its center at the junction of Fall River with Big Thompson River. Two creeks, the Black Cañon from the northwest and Fish Creek from the south, also empty their waters into the Big Thompson at this place. Except in the vicinity of the village, which has now a hundred cottages where there were ten a few years ago, the valleys of the different streams are mostly too narrow for cultivation. Large short-grass meadows with sparse tree growth form the original 'parks' along the sides of the river bottoms, but in many places the walls of the mountains are so steep and so near the water, that even the road had to be cut through the rocks. This is particularly the case in the Big Thompson Cañon between the village and Fork's Hotel at the mouth of the North Fork, a distance of about ten miles

full of wild scenery, but now more and more occupied by cottages and camps wherever there is a spot level enough to pitch a tent. The elevation of Fork's Hotel is 6160 feet and that of the village of Estes at the post-office is 7500 feet. Elkhorn Lodge, at the west end of the village, one half mile from the post-office, is 7550 feet; Horse Shoe Ranch, five miles up in the Fall River valley, is 8500 feet; Miller's Ranch and Rustic Hotel, five miles north of the post-office, are 7,900 feet; Stead's Hotel, five miles southwest, is 8000 feet, and Long's Peak Inn, eight miles south, 9000 feet above the sea.

All these places are connected by fine driving roads, and it is mainly along these roads and within one mile of them that the notes were taken. No attempt was made to reach timberline, and the highest region visited was about 9500 feet in the vicinity of Long's Peak Inn, which region, for the sake of shortness, will be called Mills Park, named after Enos Mills, the genial proprietor of the Inn. Lying in the lap of the Front Range with its long row of high peaks, one of which, Long's Peak, reaches a height of 14,259 feet, and enclosed by chains of so-called foothills, most of them over 8000 feet high, the views from the roads of Estes Park are an ever changing panorama of mountain scenery, made most picturesque by the numerous snow fields which crown the loftiest peaks. Even as late as June 24 a fresh layer of the 'beautiful' added to the magnificence of the Front Range as beheld from the village, and when we left the valley four weeks later, large patches were still defying the hot rays of a burning July sun.

What enormous quantities of snow are deposited during the long winters in those heights can be conceived only when we consider that all the water carried down to the plains throughout summer is the product of melting snow, the precipitation during summer being hardly sufficient to keep the ground moist enough for the growing vegetation.

From June 10 to July 5 the base of our operations was at Elkhorn Lodge; from July 6 to 15 at Long's Peak Inn, and from July 15 to 18 at Fork's Hotel. Long's Peak Inn lies in the middle of a valley covered partly by a level meadow, called Glacier Meadow, one mile long by one fourth of a mile wide and very swampy in places, especially so near the inn, where the Inn Brook meanders through

it. Up to 9000 feet the yellow pine (*Pinus scopulorum*) makes fine trees, as a grove of them near Long's Peak Inn demonstrates. From 8000 feet up the lodgepole pine (*Pinus murrayana*) makes its appearance and begins to make pure, almost impenetrable, stands. The Douglas spruce (*Pseudotsuga mucronata*), which in the lower valleys is chiefly found with the blue spruce (*Picea parryana*) in the creek bottoms, becomes more common at 8000 feet and extends with the lodgepole to 10,000 feet. Engelmann's spruce (*Picea engelmanni*) and balsam fir (*Abies lasiocarpa*) occur along streams from 8000 feet up, but their real home is above 10,000 feet to timberline. White or limber pine (*Pinus flexilis*) is found locally from 8000 feet up, but is more abundant in the Engelmann spruce and balsam fir zone. Wherever we go, we soon meet with large tracts of very scant tree growth covered with the prostrate remains of trees destroyed by forest fires. It is highly probable that most of these fires were caused by lightning, as the almost daily occurring storms are often accompanied by severe discharges of electricity, which in drouths may easily set trees on fire. Not far from the Elkhorn Lodge we saw a pine of three feet diameter split in two in the middle for a distance of twenty feet to the ground. Deciduous trees are greatly in the minority and of small size except the aspen, which makes sometimes pure stands and grows to over a foot in diameter. Willows and aspens with some alder, birch and wild cherry make the bulk of the thickets along the streams from 7500 feet up, while at lower elevations the narrow-leaved cottonwood is added, but there are no oaks, elms, sycamores or any others of the many kinds of trees which fringe the water courses in the Eastern States. Mountain maples (*Acer glabrum*) make thick bushes at Fork's, where the hillsides, apparently too dry for conifers, are covered with shrubs and low vegetation. Although at first not inviting looking, these stony hillsides were found to harbor many more birds than one would expect, being attracted by the many eatable berries and seeds of the plants growing there and ripening in July.

June is the month when the wonderfully rich flora of these mountains is in its greatest glory. The earliest flowers of the year are then still in evidence, among them the modest pasque flower (*Pulsatilla hirsutissima*) and the conspicuous flowering raspberry

(*Oreobatus deliciosus*). The ground of the short-grass hills is at this time literally covered with flowers of many colors and shapes. To one not acquainted with the flora of the region the strange forms of *Oreocarya virgata*, *Frasera stenosepala*, *Elephantella grænlandica*, *Eriogonum umbellatum*, and *Castilleja linariifolia* are some among the striking novelties of the park. He will also wonder at the beauty of the snowy-white flowers of the evening primroses (*Anogia* and especially *Pachylophus cæspitosus*) growing abundantly in company with the golden-yellow bunches of the stone-crop (*Sedum stenopetalum*) on the bare gravel, where nothing else can find a foothold. He will admire the rich coloration and abundance of the loco-weeds (*Aragallus*) and their cousins *Lupinus* and *Thermopsis*, all conspicuous for bright colors. Toward the end of the month the great-flowered *Gaillardia* adorns the hills, the Mariposa lily opens its unpretentious flowers, and the blue columbine shines through the woods. Along the creeks innumerable shooting-stars decorate the banks, and wherever we go, we see representatives of such well-known genera as *Achillea*, *Arnica*, *Aconitum*, *Campanula*, *Cleome*, *Crepis*, *Delphinium*, *Epilobium*, *Erigeron*, *Erysimum*, *Lappula*, *Lithospermum*, *Penstemon*, *Phacelia*, *Polygonum*, *Senecio*, *Solidago*, etc.

The climate of the region would have been nearly perfect during our stay, had it not been for the almost daily occurrence of thunderstorms with or without precipitation, often only a sprinkle, but sometimes heavy rain with much hail and followed by a strong, cold wind from the west. The early morning hours were ideal; the clearest sky imaginable with cool, though never freezing, temperature, soon tempered by the unobstructed rays of the sun. With the rise in temperature the sky began to change its appearance. As early as eleven, sometimes before ten o'clock, the first clouds gathered around the high peaks, and by noon they had formed dark, often black, masses, from which went out streaks of lightning accompanied by very unpleasant rumblings of thunder. These threatening clouds may linger for hours among the peaks with very little movement, or they may break out with great rapidity and pour out their wrath for half an hour or more. With few exceptions every afternoon was thus partly lost for field-work by the unpleasant weather conditions, but when the storm did

not only threaten but really bring a good rain, everything was refreshed, plant and bird, and the laziest songsters became musical for a short time.

Compared with eastern birds the songsters of the region were with few exceptions the laziest musicians imaginable; not even the early morning hours, which are so full of melody with us, induced them to much effort, and during the day the silence away from the village was almost exasperating even in June, still more so in July. The farther away from human activity the more retiring were their habits, and with the thick vegetation along the watercourses and the dense foliage of the evergreens it was easy enough for any bird to hide and remain invisible even when singing or calling. Not only their song but even their call-notes were much softer than those of their eastern relatives, and it took the sharp ear of Mrs. Widmann to notice the faint lisps of the Empidonaces and other slender-voiced species.

From the long list of summer residents it might be inferred that there is an abundance of bird life to be found in Estes Park, but such is not the case. By visiting the surrounding mountains at an elevation of over 10,000 feet the list could have been swelled to a full hundred, but of this great number of species only about a dozen could be called common, and these only near human habitations.

The Western Robin was by far the most numerous and conspicuous bird at all places visited, and its song, frequently the only one heard, was freely given at all hours of the day and until dark in the evening. Next to the Robin in abundance and singing was the Western House Wren, whose musical ability was found to be of a higher quality than that of its eastern cousin; it had a finch-like intonation, which was rather misleading at times. Conspicuous by its lovely color and charming fearlessness was the Mountain Bluebird. Unfortunately it was a silent bird; only a short, ventriloquial call-note, slightly reminding the dear carol of our eastern Sialia, was heard when the parents tried to keep the family together. Along the watercourses in the neighborhood of settlements the Warbling Vireo and the Mountain Song Sparrow could be called common, as their songs could not escape the ear of anyone who cares for bird music; away from men they were rather rare, and the same can be said of the White-crowned Sparrow.

Locally common were the Brewer's and Red-winged Blackbird; the former on short- and long-grass meadows and in the village itself; the latter only on wet meadows. Both species occurred in flocks at Fork's at the middle of July. Of Swallows the Violet-green was the most common and generally distributed, but in the centre of the village the Eave was the most numerous, with nests on cliffs as well as under eaves.

Of Woodpeckers, the Red-shafted Flicker was the only one which could be called common; but the two Sapsuckers, the Red-naped and Williamson's, although not numerous, appeared so at times through their habit of flying long distances to fetch food for their young, thereby crossing and recrossing continually valleys, roads and buildings. Numerous without appearing to be common because of their diminutive size and quiet ways were the Pygmy Nuthatch and the Mountain Chickadee. The Chippy, present at or near every settlement, did not play a conspicuous part, being rather shy and silent. The Pine Siskins were more in evidence, though less numerous, by their fearless manner in feeding by the wayside in small troops. Very prominent without being really numerous were the Magpies and Long-crested Jays because of their large size, loud voice, and gregarious habit, at least at the time of our visit, when they moved in family groups with constant chattering.

Lists of the birds of Estes Park have already been published. Vernon Lyman Kellogg's 'Notes on some Summer Birds of Estes Park, Colo.' was published in 1890 in the Transactions of the Kansas Academy of Science, Vol. XII. His observations were made during the summers of 1886-89. He noted 60 species and added 16 species on the authority of Gilbert Pierce, formerly of Lamb's Ranch, Estes Park. Richard C. McGregor's 'Birds of Estes Park,' observed in July and August, 1893, was published in 'The Nidologist,' Vol. IV, pp. 3-5, January, 1897. He mentions 58 species. Comparing these lists with the present one we find that some change in the bird fauna has been going on during the seventeen years since McGregor made his observations. The principal difference seems to be in the addition of eastern species, which have advanced through the foothills deeper into the mountains with the settlement of the valleys.

Not counting those species that have been found only at Fork's, 6160 feet, which place was probably not visited by Kellogg and McGregor, twelve species must be considered new additions from the east to the bird fauna of Estes village. They are Chestnut-backed Bluebird, Catbird, Western Yellowthroat, Yellow Warbler, Rough-winged Swallow, Western Vesper Sparrow, Pine Siskin, House Finch, Cowbird, Bobolink, Kingbird, House Sparrow.

Increased in numbers seem to have the following: Western Robin, Western House Wren, Mountain Song Sparrow, Barn Swallow, Red-headed Woodpecker, Red-winged Blackbird, Western Meadowlark, Pygmy Nuthatch (of which Kellogg saw but one), and the Band-tailed Pigeon, now protected by State law until September 1, 1914.

Decreased have: Kingfisher, Rock Wren; Western Tanager, which McGregor found abundant; Cassin's Purple Finch, also called abundant by McGregor; probably also Audubon's Hermit Thrush, found "not uncommon" by Kellogg. That Cassin's Kingbird has ever been common, as Professor Kellogg found it twenty years ago, is so much more astonishing as not a single individual has been met with anywhere. To the decrease of Birds of Prey is due the enormous increase of Chipmunks and Spermophiles, and to their increase the scarcity of birds which build on or near ground. The little chipmunk (*Eutamias amoenus operarius*) may be less injurious to birds than the larger one, Say's spermophile (*Callospermophilus lateralis*), which is by far the commoner of the two at the altitude of Long's Peak Inn, 9000 feet. That not even bird nests in low trees are safe from the attacks of this rodent, which has the size of a house rat, was proved to us June 28, when near Horse Shoe Falls our attention was called by the most piteous cries of a pair of Audubon's Warblers to a young Douglas spruce, in which a Say's spermophile was climbing up and had already reached a height of three feet, climbing higher in spite of the hostile demonstrations of the distressed warblers. Eight feet from the ground and two feet from the tip of the spruce was the home of four not yet fully fledged warblers and it was clear that the 'rat' intended an attack upon it, for the animal is never seen to go up trees in its ordinary occupation, which is chiefly aimed at the destruction of wild flowers, on which it seems to live in summer,

thereby reducing considerably the beautiful flora of its habitat. Natives attribute the present scarcity of birds to the savage pastime of some campers, who spend the dull hours of the day hunting. As there is no game to be killed, and as it would be against the law to kill none-game birds in Colorado, the hunters pretend to shoot only Magpies and Jaybirds, which are exempt from protection. Mr. Mills told us that there were times when parties of campers wagered, which party would bring home the largest number of birds after a day's hunting. It is not nearly so bad now, but the whole region around Estes Park should be made a National Park, in which no shooting at all should be allowed. The influx of visitors becomes ampler every year since the roads to Lyons and to Loveland have been made so pleasant for automobiling, and on Saturdays as many as fifty automobile parties come from neighboring towns, mainly from Denver, to spend the Sunday in the park. While Say's spermophile, the mountain rat (*Neotoma*), the weasel (*Putorius*) and the bobcat (*Lynx uinta*) are destructive to birds nesting on or near the ground, the boy with the gun must be regarded the most dangerous enemy of birds in general, but with the prohibition of firearms and the reduction of the superabundance of chipmunks and spermophiles it may be hoped that Estes Park becomes as much a paradise for birds in Colorado as Yosemite Valley is in California.

*List of Species.*

1. **Porzana carolina.** July 9. One in very fine plumage in swampy part of the Glacier Meadow within one hundred yards of Long's Peak Inn. Became very much excited on approach and walked about with many sharp 'kigs,' as if fearing for its nest or young. It was again seen at the same place on the following day.

2. **Gallinago delicata.** First seen on fence post near Long's Peak Inn July 7, 8.45 A. M., uttering loud calls. Again seen on evening of July 8 on fence post uttering the same loud calls, which we heard in two other places in the Glacier Meadow between Long's Peak Inn and Lamb's Ranch on several evenings between July 9 and 14 and which were continued until 8.30 P. M., when it was almost dark.

One was seen walking in the water-covered part of the meadow on the morning of the 9th with incessant calls of *wack*, apparently calling its young ones.

3. **Actitis macularia.** Two adults with three very small young ones

were seen June 25 at Lily Lake, 8900 feet. One was seen at Sheep's Lake 8500 feet July 1, and one at Mills brooklet, July 8, 9000 feet.

4. **Colinus virginianus.** One female ran across the road near the Electric Light Plant in Fall River valley July 1, and two on the same day near Horse Shoe Ranch, 8500 feet. Two in Lamb's Ranch, July 14, 9040 feet.

5. **Columba fasciata fasciata.** One flock of 25 on Miller's Ranch, 7900 feet, in oatfield, June 21. Another flock of 20 visiting the oatfield of the Horse Shoe Ranch, 8500 feet, June 22, July 1 and 2.

6. **Zenaidura macroura carolinensis.** Numerous at Fork's, 6160 feet, July 15-18. A few in Estes village frequenting the lawns. None higher up than Moraine Park, 8000 feet.

7. **Accipiter cooperi.** One flew low over Elkhorn Lodge at sundown July 2, going straight up Fall River valley.

8. **Buteo borealis calurus.** Two young and one adult, seen together in the air above Beaver Creek valley, south of Deer Mountain, June 22. One adult, in air above Wind River valley, June 25. One above Mills Beaver Lakes, 2 miles south of Inn in Mills Park, July 7. One over Inn, July 10. One over Schwarz's beaver pond, 4 miles south of Long's Peak Inn, July 12.

9. **Buteo swainsoni.** One over Old Man Mountain, June 12.

10. **Archibuteo ferrugineus.** Two in fine dress low over Fall River valley, June 10.

11. **Falco mexicanus.** One chased a Sparrow Hawk across Glacier Meadow July 9; again seen at same place July 11. One flies down Big Thompson valley toward Prospect Mountain July 15.

12. **Falco sparverius phalœna.** Six pairs were located. One in Fall River valley; one in Black Cañon near Twin Owls Mountain; one in Beaver Creek valley; one at Mary's Lake; one feeding young in hole 6 feet from ground in Mills Park, July 10, and one with one young just out of nest near Fork's, July 16.

13. **Otus asio maxwelliæ.** July 8 to 14 repeatedly heard after dark in vicinity of Long's Peak Inn. Two and three heard at same time.

14. **Bubo virginianus pallescens.** One June 19, on side of Old Man Mountain, where, according to natives, the species has been nesting for years.

15. **Ceryle alcyon.** One in Fall River valley, June 14. One in valley of North Fork of Big Thompson River, July 16 and 17.

16. **Dryobates villosus monticola.** Only one pair, near Horse Shoe Ranch, July 2.

17. **Dryobates pubescens homorus.** One pair repeatedly seen (June 18, 24, 29) near Stanley's hotel, 7550 feet.

18. **Sphyrapicus varius nuchalis.** Ten pairs located: One at Fork's; three near Estes village; two at Horse Shoe Ranch; one in Lamb's Ranch (9040 feet) feeding young in nest July 14; one at the Long's Peak Inn; one at Mills Beaver Lakes; one at Columbine July 8. The young of this and the next species are so noisy that nests are easily found.

19. ***Sphyrapicus thyroideus.*** Four pairs feeding young in holes 8 to 20 feet from the ground in pines. One near Elkhorn Lodge, June 11 to 19. One near Stanley's hotel, June 11 to 30. One in Mills Pine grove, still feeding July 9. One, Lamb's Ranch, young leaving nest July 12.

20. ***Melanerpes erythrocephalus.*** Three pairs; two on hill south of Elkhorn Lodge; one near McGregor's Ranch, north of the village, 7600 feet.

21. ***Asyndesmus lewisi.*** Only at Fork's, 6160 feet, where were four pairs within two miles; young just out of nest July 16.

22. ***Colaptes cafer collaris.*** Eighteen pairs located between Fork's and Long's Peak Inn. Fully grown young July 15 at Fork's.

23. ***Phalænoptilus nuttalli nuttalli.*** Only in one place; two birds heard at 8 p. m., June 19, on plateau above forester Ryan's lodge south of Old Man Mountain.

24. ***Chordeiles virginianus henryi.*** Singly or in troops nearly every evening at all places. One young, hatched the same morning, was shown us July 14 by Mr. Dean Babcock, who had watched the sitting bird during the entire incubation of 21 days. One of the two eggs was deserted by the parent who removed the newly hatched young about six feet from the nest.

25. ***Cypseloides niger borealis.*** Two were hunting over Glacier Meadow, 9000 feet, in the evening of July 8, and on July 10 three were seen at the same place at 11.30 a. m., during a light rain which preceded a heavy hail storm.

26. ***Aëronautes melanoleucus.*** Only three times seen for a few moments, singly or twos, over the village June 17, 21, July 3, always between 8.40 and 10 a. m.

27. ***Selasphorus platycercus.*** Seen from June 16 to July 16 at twelve places at 6150, 7500 and 9000 feet. Two stations, on tip of dead trees, of males watching nesting ground in Mills Park (July 5 to 15). Saw male playing, up and down flight, July 10; male chasing Brewer's Blackbird, July 7.

28. ***Tyrannus tyrannus.*** June 19, one in Estes village, 7500 feet, near mouth of Fall River. July 15-18, six pairs in valley of North Fork, 6160 feet, where quite conspicuous; one feeding young in nest in pine fifty feet from ground.

29. ***Nuttallornis borealis.*** One at Mills Beaver Lakes, 8700 feet, Mills Park, July 7.

30. ***Myiochanes richardsoni.*** Five pairs in Estes village, where they were often heard until 8 p. m. Also at Gem Lake, 8000 feet, Horse Shoe Falls, 8500 feet, but none at Mills Park. Several at Fork's, where a partly albino would have been difficult to recognize if he had not been calling continually. The bird was pure white on the breast and tail and had black stripes on the white head, resembling the markings of the White-crowned Sparrow.

31. ***Empidonax difficilis difficilis.*** Repeatedly heard and seen at four stands in Estes village and one mile west on Fall River.

32. **Empidonax hammondi.** In three places along North Fork within one mile of Fork's.

33. **Empidonax wrighti.** July 9, one in a pasture near Long's Peak Inn; at same place, July 10. July 12, one in Lamb's Ranch.

34. **Pica pica hudsonia.** At all places. Young out of nest June 18, fully grown except tail. Usually seen in families. Old nests in many places, some as low as eight feet. Much shyer than Jays and do not come into the village or near buildings.

35. **Cyanocitta stelleri diademata.** At all places; at first only single birds seen. After June 22, mostly in families. At Fork's, a troop of twelve on the ground near camps.

36. **Perisoreus canadensis capitalis.** July 1, one flying across Horse Shoe Park, near Sheep Lake; July 13, a family in Lamb's Ranch, where they are said to breed and winter. They seemed to be quite at home and came within a few yards of the buildings, scrutinizing and greeting the intruders with interesting talking.

37. **Nucifraga columbiana.** Only once seen, three birds, July 13, at foot of Estes Cone north of Lamb's Ranch, about 9500 feet, coming over Wind River cañon from Lily Mountain.

38. **Dolichonyx oryzivorus.** June 15. One male in meadow near Elkhorn Lodge; under observation half an hour, but not seen again.

39. **Molothrus ater ater.** July 3. One male in pasture with cattle near Burch's chalet in Estes village.

40. **Agelaius phoeniceus fortis.** About six pairs in Stanley's meadow at the east end of Estes village; about the same number in Horse Shoe Park and in Mills Park, where young out of nest were fed July 7. A flock of about thirty young ones at Fork's, July 15 to 18, and a few, still feeding young in nest, very noisy around the hotel and along North Fork.

41. **Sturnella neglecta.** A few on large meadows in every valley; several in Stanley's pasture at east end of village; in Big Thompson Valley south of village; in six places between village and Devil's Gulch; in Moraine and Horse Shoe Parks; Beaver Creek valley; Marie's Lake, and once heard song in Lamb's pasture, 9040 feet, July 12.

42. **Euphagus cyanocephalus.** At all settlements; prominent in village, where they frequent vacant lots and roads, doing much flying to and fro when feeding young. On June 19 they were particularly busy catching insects high in air. Are scolding and aggressive when one approaches their nest. First young out of nest in the village June 30. Still feeding young in nest at Mills Park July 13. In large flocks, young and old together, at Fork's, July 15-18.

43. **Carpodacus cassini.** Three pairs in the village and one at the Horse Shoe Ranch. Young male in brown singing, June 15 and 18. Pairs often come down to the ground to feed on seed of dandelion, and males sing on the ground.

44. **Carpodacus mexicanus frontalis.** One pair in the village at the foot of the cliff behind Hupp's Annex. Male sings on telephone wire.

45. **Loxia curvirostra minor.** June 20, male and female together in top of Douglas spruce one mile west of Elkhorn Lodge in Fall River valley. June 23, four alight on tree at head of Devil's Gulch, 8000 feet. June 25, calls of Crossbills flying over Mills Park.

46. **Astragalinus psaltria psaltria.** None before July 11, when two alighted in Mills Park. July 12, five fly over Lamb's Ranch going south toward Mills Park.

47. **Spinus pinus.** Small parties in the village seen almost daily; a few at Long's Peak Inn.

48. **Passer domesticus.** Two pairs in center of the village, where were four young ones flying together, June 30. Also two males seen at Stead's Hotel in Moraine Park, 8000 feet.

49. **Poecetes gramineus confinis.** In two places on large short-grass meadow near head of Devil's Gulch, June 23.

50. **Zonotrichia leucophrys leucophrys.** Six singing males were located in the village along Fall and Big Thompson Rivers. The song was best heard in the evening after sunset and after rains, less regularly in the morning. At Long's Peak Inn one male was singing all day until dark and Mr. Mills said, he heard it often in the middle of the night. This pair was very tame and came within a few yards of the guests at the inn.

To one accustomed to the song of the species in the East the song of this Rocky Mountain bird is a great surprise, for it has no resemblance at all, only one note at the beginning to the monotonous ditty reminding one of the much more powerful and melodious song which we hear every May in the Mississippi Valley. The bearing, too, seems to lack the proud carriage of the more stately and apparently handsomer eastern brother, and if the books did not accept it as one and the same species, one could take them for different birds.

51. **Spizella passerina arizonæ.** The Chippy was found near every settlement, most numerous in the village, but also at the Horse Shoe Park, at the Long's Peak Inn, and at Fork's.

52. **Spizella pallida.** On the afternoon of July 10 I was surprised by seeing a Clay-colored Sparrow coming down to the water of the Inn brook between the Long's Peak Inn and Columbine to drink. Going to the same place next morning early I saw two young ones with a crescent of fine streaks over the buffy breast. At Fork's the species seemed to be fairly common among the sage-brush vegetation of the hillsides, several family groups being startled July 18.

53. **Junco phæonotus caniceps.** Only one bird was seen near the village at the foot of Old Man Mountain June 18. Several together and first young out of nest fed by parent were seen at Horse Shoe Park, 8500 feet, July 1. More numerous and a rather frequent songster at Mills Park, 9000 feet. A nest with four eggs July 14.

54. **Melospiza melodia montana.** Six singing males along the streams in Estes village. Song heard also at Horse Shoe and Moraine Parks; at Lily Lake, 8900 feet; at Mills Beaver Lake, 8700 feet; at

Schwarz's beaver lake, 8500 feet; but none on Glacier Meadow, 9000 feet, where entirely replaced by Lincoln's Sparrow.

55. ***Melospiza lincolni lincolni.*** Only one pair in Estes village in Stanley's pasture, together with Song Sparrows on the same ground. Also with Song Sparrow in Horse Shoe Park, 8500 feet. More common in Mills Park, where their song could be heard at all times of the day at Long's Peak Inn, the singer sitting within a few yards of the building. Four were in song at the same time in Glacier Meadow and several more along Inn Creek, which flows south toward the St. Vrain River.

56. ***Pipilo maculatus montanus.*** Only at Fork's, where common, in song and with fully grown young.

57. ***Oreospiza chlorura.*** At all places, in song, from Fork's to Mills Park, but nowhere conspicuous because shy. With fully grown young July 18 on the hillsides above Fork's.

58. ***Zamelodia melanocephala.*** At Fork's; in the village and Horse Shoe Ranch, but none at Mills Park.

59. ***Passerina amoena.*** Only at Fork's; several males in full song, and fully grown young, July 15.

60. ***Piranga ludoviciana.*** At Fork's and at several places in the cañon of the Big Thompson. Two pairs in the village, and one male July 12 in Lamb's Ranch.

61. ***Petrochelidon lunifrons lunifrons.*** Twenty-three nests were occupied under the eaves of the schoolhouse in Estes village. Several more were in use on the cliffs at the mouth of Fall River, and on the rock near the planing mill. Birds were seen near Highland Inn and in the cañon of the Big Thompson between the village and Fork's, but much larger numbers were seen in the cañon east of Fork's.

62. ***Hirundo erythrogaster.*** One or two pairs in the village on the Dunraven Ranch; seen also at Highland Inn and Mary's Lake. Two pairs feeding young in nests, July 15-18, at Fork's.

63. ***Iridoprocne bicolor.*** Associating and sitting together side by side with Violet-green Swallows were two pairs of Tree Swallows on the telephone wire in front of Long's Peak Inn, July 7.

64. ***Tachycineta thalassina lepida.*** The most numerous and generally distributed of the swallows; common at Fork's, as well as in the village and Mills Park. Nesting about buildings, but more frequently in woodpecker holes in the vicinity of settlements; never far from them. One looked out of an old Eave Swallow's nest under the eave of a cottage in the village; another pair building in a nook under the roof of a cottage was driven from it by a Mountain Bluebird preparing for a second brood.

65. ***Stelgidopterix serripennis.*** One pair at the east end of the village near Dunraven ranch.

66. ***Vireosylva gilva swainsoni.*** Song heard along all streams from 6000 feet to 9000 feet; but mostly near settlements; song still heard July 18, when we left.

67. ***Lanivireo solitarius plumbeus.*** One pair in village on bluff

above planing mill. At three places song heard and birds seen within half a mile of Fork's along Big Thompson River July 15-18.

68. **Vermivora virginiae.** Only one male, in song, at Gem Lake, 8000 feet, July 22.

69. **Dendroica aestiva aestiva.** Three pairs in the village, where was a nest with three apparently fresh eggs, June 24, in Stanley's meadow. Song heard also in three places at Fork's, July 15-18.

70. **Dendroica auduboni auduboni.** Three pairs on the hillsides in the village; a few up Fall River valley to Horse Shoe Falls where was a nest with nearly fledged young, June 28. More numerous in Mills Park, where they visit porches and sides of cottages in search of flies. They are no hiders and therefore among the birds oftenest seen in the Park. First young out of nest in Mills Park July 9.

71. **Seiurus noveboracensis notabilis.** Only one seen at Fork's, July 16, on an island in Big Thompson River, half a mile east of Fork's hotel, started from bank with alarm note.

72. **Oporornis tolmiei.** Oftener heard than seen. Three in song along Fall River and Big Thompson River in the village; several between the village and Horse Shoe Falls; one in song near Long's Peak Inn; none at Fork's.

73. **Geothlypis trichas occidentalis.** One male in song June 30 in the village on the bank of the Big Thompson River at the foot of Prospect Mountain.

74. **Wilsonia pusilla pileolata.** Two males in Horse Shoe Park; one in Mills Park.

75. **Cinclus mexicanus unicolor.** Two nests, under bridges over the Big Thompson River, east of the village. The nests were placed directly under the floor, and the birds flew from under the bridges every time a vehicle passed over them. At Fork's they were quite fearless and could be watched under the water, both in the Big Thompson and North Fork Rivers.

76. **Dumetella carolinensis.** Three singing males in the shrubbery along Fall River and Black Cañon Creek, in the village. The song of one near Elkhorn Lodge differed as much from that of the eastern as the song of the Western Meadowlark differs from the Eastern. One at Fork's July 16.

77. **Salpinctes obsoletus obsoletus.** One had its station on the edge of the cliff behind Hupp's Annex in the village and was singing there even in the strongest breeze. Another was seen on the side of the Old Man Mountain near Ryan's lodge.

78. **Troglodytes aëdon parkmani.** One of the common birds from Fork's to Mills, not only about human habitations, but some distance from them in the woods and among boulders. Its song is more pleasing than that of its eastern half-brother, but is not given with the same liberality and perseverance.

79. **Sitta carolinensis nelsoni.** Two pairs in the village; one pair

with grown young, June 23, at head of Devil's Gulch; one pair in Mills Park, July 6; in Wind River cañon, July 7; Lamb's Ranch, July 14.

80. **Sitta pygmæa.** Seven pairs located; four in the village; one at Horse Shoe Ranch; one in Mills Park; one in Lamb's Ranch. First young leave nest June 21.

81. **Penthestes atricapillus septentrionalis.** One pair near Elkhorn Lodge; one near Gem Lake, 8000 feet; two pairs at Fork's, feeding young out of nest, July 15.

82. **Penthestes gambeli gambeli.** Five pairs near the village; two at Horse Shoe Ranch, two in Mills Park. First young leave nest June 16; building again June 26.

83. **Regulus calendula calendula.** None near the village. Lily Lake, 8900 feet, June 25; Horse Shoe Ranch, July 2; two pairs near Long's Peak Inn, 9000 feet, and one at Lamb's Ranch, 9040 feet; one at Schwarz's beaver lake, 8500 feet, July 6.

84. **Myiadestes townsendi.** One near the village, at side of Old Man Mountain, June 18 and 19; one in song, Gem Lake, 8000 feet, June 22; one in song in Wind River cañon, June 25; one on tree-top, Lamb's Ranch, 9040 feet, July 12.

85. **Hylocichla fuscescens salicicola.** Four in song in Mills Park July 8-14; heard sometimes during the day, but regularly in evening just before dark.

86. **Hylocichla ustulata swainsoni.** From Fork's to Mills, 6000-9000 feet, along all streams; one even in village near the mouth of Fall River, and others just outside of the village. One came to the lawn of Elkhorn Lodge in the early morning when everything was quiet, but otherwise they were exceedingly shy and were seldom heard to sing in day time and usually not until it was so dark in the evening that it was not easy to see them, even when one succeeded in getting near to the singer. Living always in the dense thicket, immediately adjoining the streams, the only time to observe them well is when they come to the edge of the water to feed at the bank, which they often do. When singing they sit about twenty feet from the ground in, not on top of a tree, sometimes an aspen, but more commonly a spruce or pine. The song is a very simple one, but is repeated with hardly any modulation over and over until it becomes monotonous. It may be represented by *wida widy* — *wida widy devit*, with the second part often omitted. Although heard in Mills Park they were more numerous between 6000 and 8000 feet.

87. **Hylocichla guttata auduboni.** None near the village. Two, in song, at head of Wind River cañon near Lamb's, 9040 feet, and two near Long's Peak Inn, 9000 feet; very quiet, singing only a few minutes at a time.

88. **Planesticus migratorius propinquus.** The most numerous and best known of all birds, almost omnipresent in the valleys, not only near settlements, but far away from them in the woods. As common at Fork's as in Mills Park, but most abundant in the village, where their song

was heard early and late, and where parents carrying food to young were constantly crossing and recrossing the roads. First grown young out of nest June 19.

89. **Sialia mexicana bairdi.** Two pairs near village nesting in old woodpecker holes in pines; one of them was near Stanley manor, the other west of Elkhorn Lodge in Fall River valley. One of the males had the chin light, the other dark blue.

90. **Sialia currucoides.** Next to the Robin, probably the most conspicuous and best distributed bird, building not only in treeholes, but also about buildings in the village. One pair fed fully grown young June 15 and began preparing for a second brood June 19, dislodging a pair of Violet-green Swallows from a cozy nook under the gable of a cottage at the Elkhorn. In Mills Park one pair fed young in a hole only four feet from the ground, but usually the nests were in woodpecker holes higher up, some in the same tree with Pygmy Nuthatches or Violet-green Swallows, or all three in the same tree.

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## TWO UNUSUAL FLIGHTS OF CANADA GEESE NOTED IN MASSACHUSETTS DURING THE FALL OF 1910.

BY J. C. PHILLIPS.

IN THE following notes I wish to put on record the occurrence of two autumn flights of Canada Geese in Massachusetts during 1910, both of which seem to me of interest.

In 'The Auk' for July, 1910, I showed that the appearance of geese in any numbers was rare before October 15 to 20, at which time there are apt to be small flights. It is exceedingly hard to find Massachusetts records during the first week in October. It was therefore quite surprising to note a very considerable migration of geese on October 3 and 4, 1910. The facts which follow show that this extremely early movement was much more than an accidental occurrence.

At Wenham Lake October 3 was clear and calm, following a strong northwest wind of the previous day. There were a few Black Ducks moving in the early morning, and a bunch of six Red-

breasted Mergansers was noted. At four p. m., eight geese came into the pond, followed by seven Black Ducks.

October 4 was very warm, with a strong south wind. The weather was muggy, close, and cloudy. At six a. m. sixty geese passed just east of the blind, very low and seemingly tired. Soon after, eight geese lighted just in front of us, and in an hour twelve more joined them. These geese came in and lighted without making a turn. We had no goose decoys in use, but obtained six of them. The rest could hardly be driven from the pond, and a small lot lighted with my live geese in a meadow about half a mile south.

I mention this to show that these geese had every indication of having met very unfavorable conditions for their journey. The warm wave continued through the next day, and the temperature on October 5 reached 85 degrees in Boston, almost a record for October. The strong southwest wind also continued.

I afterwards attempted to learn all that I could concerning the flight, and the following occurrences can be vouched for.

Chebacco Lake, Essex County, October 3, one bunch of geese heard going over.

Accord Pond, South Hingham, October 3 and 4, two bunches (thirteen and sixteen) in the pond.

At Silver Lake, Kingston, on the same dates, bunches of fifteen, twenty-five, and eighteen in the pond, and about fifty flying.

In Robbins Pond, East Bridgewater, fourteen came to the pond.

In Jacobs Pond, Norwell, three flocks, thirteen, thirteen, and twenty-seven, were seen.

A few geese came into Duxbury Bay on the same flight, "possibly fifty."

At Ponkapoag Pond, Canton, one hundred and fifty were noted.

All these occurrences were during the same period as the flight mentioned for Wenham Lake.

Glancing now at the Canadian daily weather charts, we find, in brief, the following state of affairs.

Our geese must have started late on October 2, or early on October 3, as our record of 4 p. m., October 3 indicates. The charts show us a typical cyclonic storm moving northeastward, accompanied by moderate precipitation. On the 2d, at 8 a. m.,

it was over the Gulf of St. Lawrence, and on the 3d it is described as a severe storm in and about Newfoundland. On this date the winds were northwest, and from sixteen to fifty-two miles an hour at Newfoundland points, with heavy precipitation; while by the 4th the winds all along the coast were south, and of considerable strength.

The storm therefore passed north of New England, leaving rather high pressure and high temperature along the coast. Geese starting from eastern Labrador probably had northerly winds and low pressure, with some precipitation; while from southwestern Labrador they would also have had fair winds. In any case, this flight must have rather suddenly encountered adverse winds, with high temperature and pressure. It seems to me most likely that these facts account for the apparent exhaustion of the flocks noted at Wenham. Much more difficult is it to account for the start. If we knew the origin of the Massachusetts coastal flight, we might obtain a clue. One point of great interest, however, is the fact of an exceedingly early spring for 1910. If the date of inland ice departure is a fair criterion — and I think it is — I find for Moosehead Lake, Maine, that this date was 24 days earlier in 1910 than the previous four year average. The following information kindly supplied by the Maine Central R. R. tells the same story. "I am giving you below the dates the ice went out in the spring of 1910, which was an abnormal year, and some three weeks ahead of the usual schedule for that event. Sebago Lake, April 1. Belgrade Lakes, April 6; in 1909, April 26. Green Lake and other fishing waters on our Mount Desert branch, April 6. Grand Lake, April 10; in 1909 the date was May 6. The Rangeleys, April 18."

New England birds are known to have nested early in 1910, and the migratory waterfowl probably did also. In this connection, it is interesting to note that Canada Geese bred by me at Wenham in 1910 were flying the last week of July — an early date, though I can give no actual comparative ones.

The second flight that I wish to speak of was a delayed and much concentrated migration which began on November 28, after a long interval during which almost no geese were seen at Massachusetts points. In fact, it was the regular mid-November flight delayed about two weeks.

At Oldham Pond, South Hanover, on November 28, there was a northeast rainstorm lasting all day. Geese appeared at 8 a. m. Two bunches came into the pond; and four bunches, comprising about 225 birds, passed over. On November 29, 78 geese lighted in Oldham Pond, and thirty were seen flying. On November 30, 110 geese came to the pond, and 33 were noted flying; while on December 1 and 2 nearly 1000 geese were seen from the stand, and a few came to the pond.

At Clark's Island, Duxbury Bay, Dr. Rockwell Coffin tells me of the same remarkable flight. About 10 o'clock on the morning of November 28, geese appeared in great numbers. In three hours a rough count showed that 6000 geese had passed outside the bar; but none came into the bay until evening. For the next seventeen days geese were seen every day at this point. Other points noted great flights; at Accord Pond 1000 were seen on December 28, but, as most places do not keep records, they need not concern us. The above data are sufficient to show that there was a very large and suddenly developed migration.

Now, as to the meteorological facts in connection with this flight, the charts of November 26, 27, and 28 all show stormy conditions off the Atlantic coast, moving slowly eastward, and accompanied by strong northerly winds. There was considerable precipitation, especially in Newfoundland; and much of it must have been snow. The wind reached 48 miles an hour at Port au Basques on November 27, while on the same day the precipitation at Sable Island was over  $1\frac{1}{2}$  inches. Strong northerly to north-easterly coastal winds continued through November 28 and 29, while the temperature remained seasonable. Migrating geese might well have started during northwesterly winds, and later on encountered the storm area, and then followed the coast with a north or northeast wind. As noted in my first paper, these conditions do not seem to be especially unfavorable for migration, as witness the fact that only a small percentage of flocks stopped during the first of this flight.

The conditions which suddenly set in motion such great numbers of birds are all a mystery. Like many of these flights, the greatest volume seems to arrive with the front of the migratory wave; and the first flocks are less inclined to stop than those that follow later on.

I also made an attempt to find out just where the great flight seen off Duxbury bar crossed Cape Cod. Dr. Coffin is sure that none of the flocks which he saw on November 28 were Brant, as from his vantage point he had been watching Brant for weeks, and was armed besides with powerful glasses.

Some enquiries were made for me at various points east of Plymouth, from Manomet to West Barnstable, but at no place was more than about 1000 geese noted in any one day. West Barnstable pond gunners reported more geese than for many years, and large numbers were seen at Manomet Point and Great South Pond, Plymouth. The same story was obtained as to an unusual flight during the last of November and early December at Great Herring Pond, Plymouth, Mashpee Lake, Mashpee, and Mystic Lake, Barnstable. Hence it seems certain that more geese crossed east of Buzzard's Bay than is usually the case. It also appears that the great Plymouth flight of November 28 must have dispersed somewhat as it reached land, because no other points, as far as I have been able to learn, witnessed such a concentrated migration.

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#### A STUDY OF THE NESTING OF THE CEDAR WAXWING.

BY ARETAS A. SAUNDERS.

PROBABLY all our accounts of the life history of the Cedar Waxwing (*Bombycilla cedrorum*) mention the flocking habits of this species. Most of them also include the statement that during the nesting season this habit ceases and the birds separate in pairs. In my own experience, however, the flocking habit often continues throughout the nesting season, the nests being placed, if not in actual colonies, at least in close proximity to each other, and the nesting birds often congregating in small flocks. One of my earliest bird-nesting memories is that of finding a number of Waxwing nests in the same apple orchard. In August, 1906, however, I found the best illustration of this habit I have seen, when I dis-

covered ten nests of the Cedar Waxwing in a small tract of about five acres. These nests, with one other about half a mile distant, were well located to watch, and I had plenty of spare time so that in the next few weeks I made many notes on the nesting habits of this species, which form the basis for this paper.

The nests were located at Woody Crest, a small shore resort of West Haven, Conn. The tract of ground was flat, somewhat swampy and covered with a second growth of red maple and chestnut sprouts about ten or twelve feet in height. In addition to the Waxwing's nests, I found on the tract three nests of the Goldfinch and two of the Indigo Bunting. Besides these I found many empty nests which showed that Robins, Catbirds, Brown Thrashers, Red-eyed and White-eyed Vireos, Yellow-breasted Chats, and Maryland Yellowthroats had nested there earlier in the season. The Waxwing nests were placed in red maples from five to ten feet above the ground. This is much lower than the species usually nests, probably because of the lowness of the bushes themselves. It was noticeable that each nest was placed as high as the bush, in which it was located, permitted. The nest located half a mile away, was in much higher cover and was fully twenty feet above the ground.

The composition of the nests was quite variable, but this variation seemed to be due more to the location of the nests than to the individual tastes of the birds. Thus two nests that were placed in bushes close to a large patch of sphagnum moss, were largely composed of that material, while other nests, not twenty feet away, but not easily accessible to the moss, had none whatever in them. The average nest was composed of grass and strips of bark with a lining of fine grass and plant fiber. Other materials used were roots, leaves, ferns, weed stalks, twigs, chestnut blossoms, and string. All these materials, except perhaps the string, could be obtained close to the nests. This bird appears to have a strong liking for string. In late June, 1907, I watched a pair of Waxwings pulling string from an old Oriole's nest, which they carried to a maple about fifty feet away where they were building their nest. This is the only opportunity I have had to watch nest-building by this species. In this case both birds took part in the building, but one bird, presumably the female, was much more active than the other.

All of the nests found in the thicket were discovered between August 20 and September 14, and all contained either eggs or young. The number of eggs or young was three in four cases and four in four others. In the other three nests it was not determined. Four nests were found before the complete sets were laid. Two of these were deserted, apparently because of my intrusion, and these two were the only nests of the eleven that failed to successfully rear a brood of young. A curious incident happened in one of these nests. When I found it, it contained a single egg which was partially imbedded into the bottom of the nest. The next day the nest was empty and I supposed the egg had been taken by some animal or bird, though I could not find a hollow place in the bottom, where the egg had been imbedded. Nothing further happened to the nest and about a week later I took it down and examined it. I was surprised to find the one egg sealed into the bottom. Apparently the bird had sealed up its egg and then deserted the nest.

The two undeserted nests which had contained incomplete sets of eggs were carefully watched. In both cases the remaining eggs were laid daily and the period between the laying of the last egg and the hatching of the young was twelve days. I watched incubating birds for some time and so far as I could tell, only the female performs this duty.

After the young hatch the female broods closely for several days until they become partially feathered and the eyes begin to open. During this time she seldom leaves the nest and never for more than an hour at a time. After this she broods but little in the daytime but continues to brood at night until the young are about twelve days old. I believe the male does not brood at all.

Both birds feed the young, but during the first few days when the female is brooding the male does most of it. When he comes to feed the young, the female leaves the nest for a few minutes, but returns as soon as he has gone. In all cases these birds are very slow and deliberate in their movements about the nest. They take a long time to approach the nest, feed the young, and leave again, during most of which they stand perfectly still between movements, with the neck stretched, the bill pointed upward and the crest lying flat on the back of the neck. I watched the nests

seated on the ground some ten or fifteen feet away. The slow movements may have been because of my presence, but I doubt it, for the birds did not show anxiety or uneasiness in any other way and in fact, I believe did not notice me at all, except when I was actually examining the nest and its contents. In approaching the nests, the birds would fly into the bush from whatever side they happened to come, sit on the lower limbs for a time, then approach the nest by short upward flights. After a long wait sitting on the nest rim, they would feed the young by the usual method of regurgitation, and then take another long wait before flying away. Each bird always left the nest in a certain direction. The birds were so regular in this that after a little observation at a given nest, I could distinguish the sexes by the direction in which they left the nest. At one nest the male bird always left flying straight toward where I sat and usually passed three or four feet over my head, not paying the slightest attention to me.

The birds feed the young only at long intervals, rarely as short as fifteen minutes and usually of from three quarters of an hour to an hour or more. Feeding, in every case that I watched, was by the method of regurgitation common to this species, which has been so well described by other observers. I believe, however, that the young are occasionally fed directly by food from the bill which has not been first swallowed by the parent. Once, as I approached a nest, I saw a Waxwing near it with a spider in its bill, which it was evidently about to feed the young. I saw it too late to stop myself, however, and frightened the bird off by my close approach. I believe that the method of feeding from the throat is not true regurgitation but is merely a convenient method of carrying more food at a time than could be taken in the bill, and accounts, in part at least, for the long intervals between feeding. The food, which in my observations was principally wild cherries, was never mashed or digested in any way, but was fed to the young whole, stones and all.

The parent birds from the different nests made trips for food in small flocks, usually of four or five. The cherry trees where most of the food was obtained grew along the shore about a quarter of a mile from the nests. The small flocks usually gathered in the tops of a few dead stubs that stood above the thicket, and left these

in a body for the cherry trees, returned in the same manner when the food was obtained and then scattered slowly to their respective nests.

The birds were rather irregular about cleaning their nests and individuals differed considerably in this respect. Small undigested parts of the food of the young, such as the cherry stones, often remained in the bottom of the nests, and it was by examining the nests after the young had left that I obtained the most information concerning the nature of the food. Stones of the wild cherry (*Prunus serotina*) were most abundant. With them were usually a few seeds of the pokeberry (*Phytolacca decandra*) and the chokeberry (*Pyrus arbutifolia*), wing cases of beetles, small snail shells, and pebbles. The latter two were evidently obtained along the shore and were always smaller than the cherry stones. The snail shells had the appearance of the sun-bleached empty ones found above high-water mark, rather than those of live snails. Both shells and pebbles had evidently passed through the systems of the young, but why the birds should feed empty shells and pebbles to the young is rather a mystery and I would not have mentioned my suspicion that this is so, were it not strengthened by other observations. Twice I saw a Waxwing on the shore above high-water mark near the cherry trees. In both cases the tide was too high for it to obtain live snails, but each time I frightened the bird away before I could see what it was doing.

I kept careful watch of the growth and development of the young Waxwings. In only three of the nests did I ascertain the exact date of hatching, but I was able to get the age of the other broods approximately by comparison of their development with that of the broods whose age I knew. These three broods left the nest, one in fourteen, one in sixteen and one in eighteen days. The other broods all left when they were approximately sixteen or seventeen days old. The young when born are perfectly naked, without the natal down found in most young birds. The first few days they grow in size only. By the fourth day a row of small black pimples shows along the middle of the back where the first feathers are starting through. In six days the feathers of the back and the wing quills come through and pimples begin to show on the breast. By seven or eight days the eyes begin to open and more

pimples appear on top of the head. In eight or nine days the head and breast feathers appear, the feathers of the back begin to break their sheaths and pimples appear on the throat. By ten to twelve days the throat and tail feathers appear, the wing quills and head feathers break their sheaths, and the creamy white streak above the eye, a mark of the young bird only, begins to show plainly. By twelve to fourteen days the eyes are wide open and all the feathers are unsheathed or unsheathing except those forming the black patch on the forehead and about the eyes. These feathers are last of all to appear and do not break the sheaths till about the fifteenth day or later, sometimes after the young have left the nest. This fact appears to have led some writers to state that young Waxwings do not have this black mark. By fourteen to eighteen days the young are fully fledged and leave the nest shortly, being able to fly a little as soon as they leave. For a few days after leaving they may usually be found in the vicinity of the nest, the whole brood perched together in a row, with necks stretched and bills pointing up in the air in the same manner as the adults.

The difference in the development of the different broods was evidently due to a difference in frequency of feeding by the parents. The brood leaving the nest in fourteen days was fed often for this species, every fifteen minutes, at least during part of the day. The brood leaving in eighteen days was fed on an average of about once an hour. The last brood left the nest on September 20.

Late in November, after the leaves had fallen, I visited the thicket again to see how many Waxwing nests in all were there. I found seven more nests evidently of this species, making a total of seventeen. These other nests were some distance from the ones I studied and much more scattered. All of the seventeen, however, could be included within a radius of 150 yards.

The next year I was away from this vicinity most of the summer but returned in September. On September 21 I visited the thicket again to see if the Waxwings had been there that summer. After a long search I found two nests, both empty, but one with a parent bird and brood of four young sitting in the bush above it. This was just one day more than a year since the last brood of the year before had left the nest. The birds were there but not in the same numbers as the previous year. Evidently Waxwings do not

necessarily return to the same locality in which they have nested before.

It is evident that the presence or absence of Waxwings in a given locality is due to the abundance or lack of a supply of the berry or fruit that forms the major part of their food. A later experience in the vicinity of Bozeman, Montana, confirms this. During the summer of 1908 there were no Waxwings that I observed in the vicinity of Bozeman. The next year, however, they appeared in June and were abundant throughout the summer. During this time I found two Waxwing nests in shade trees along the streets of Bozeman and could doubtless have found many if I had had time for search. In this region the service berry (*Amelanchier alnifolia*) forms the principal article of food. This berry was very abundant about Bozeman in 1909 and correspondingly scarce in 1908. During the summer of 1910, in a few short visits to Bozeman, I again found Waxwings quite common and service berries fairly abundant.

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#### NOTES ON THE MIGRATION OF THE SAW-WHET OWL.

BY P. A. TAVERNER AND B. H. SWALES.

FROM all written accounts it appears that the Acadian, or Saw-whet, Owl (*Cryptoglaux acadia acadia*) is generally regarded as a resident wherever found or that, if it migrates at all, it is but slightly and the movement is limited to the northern and southern extremes of its range. This view is reflected by the citations from the following authors.

Wilson. "This species is a general and constant inhabitant of the Middle and Northern States."<sup>1</sup>

A. K. Fisher. "The species is not migratory but is more or less of an irregular wanderer in its search for food during the fall and winter."<sup>2</sup>

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<sup>1</sup> Wilson. American Ornithology. Brewer ed., 1840, 310.

<sup>2</sup> Fisher. Hawks and Owls of the United States in Their Relation to Agriculture, 1893, 161.

Coues. "Fitted to endure great cold, it is resident in our northern districts."<sup>1</sup>

Bendire. "It is a constant resident throughout the greater portion of its range within the United States, only migrating from its more northern breeding grounds and passing the winter mainly in the Middle States where it is met with at times in considerable numbers."<sup>2</sup>

Nuttall. "In the United States it is not uncommon as far south as Pennsylvania and New Jersey where it is resident."<sup>3</sup>

Other authorities could be quoted but the above is sufficient to show the general trend of opinion on this subject. Some of our late experiences, however, in southern Ontario and adjoining territory, have caused us to alter our mind on the residential status of this species and we believe that it migrates more extensively and generally than has heretofore been supposed.

The fact is, that our recent observations at Point Pelee have induced us to believe, that in resident species, migration is the rule with its component individuals rather than the exception. The mere accident that the northern limit of the winter range overlaps the southern limit of the summer range is no indication that migration is not the fixed habit of every individual of the species even though the movement is not observable, because as summer birds leave and winter ones from the north come in, the average population remains unchanged and the movement therefore unnoticed.

The first indication we received of any strong migratory movement in this species was when W. E. Saunders of London, Ont., received word from Mr. Tripp of Forest, Ont., of a migration disaster on the shores of Lake Huron, October 18, 1906. His investigation of this occurrence was reported in 'The Auk'.<sup>4</sup> He discovered the shore of the lake in the vicinity of Port Franks covered with the water-washed bodies of birds that had been overwhelmed in a storm, likely while crossing the lake; and though he

<sup>1</sup> Coues. *Birds of the Northwest*, 1874, 316.

<sup>2</sup> Bendire. *Life Histories of North American Birds*, Vol. I, 1892, 350.

<sup>3</sup> Nuttall. *A Popular Handbook of the Ornithology of Western North America*. Chamberlain ed., Vol. I, 1872, 72.

<sup>4</sup> Saunders. *Auk*, 1907, 108-110.

covered but a small portion of the affected territory and did not touch upon its worst part, he counted 1845 dead birds in two miles of shore. Here was evidently a disaster that overcame a large movement of mixed migrants but the salient fact in this connection is, that he counted 24 Saw-whet Owls among the debris. Mr. Saunders is, and has been for the last twenty-five years, a most keen and enthusiastic field worker, but in summing up his experience with the species, says: "The Saw-whets were a surprise. They are rare in western Ontario, and one sees them only at intervals of many years, evidently they were migrating in considerable numbers."

A statement elicited from the captain of the fish boat 'Louise' of Sandusky, Ohio, bears very closely upon this subject. He says, that about October 10, 1903, when on the steamer 'Helena,' off Little Duck Islands, Lake Huron, he saw a large migration of small owls and that many of them lit on the steamer. His description tallied very well with that of this species and there is the probability that it was a relay of this same migration that was so hardly used in 1906.

We were unable to include this species in our List of the 'Birds of Point Pelee,'<sup>1</sup> having at the time of publication (1906-07) no satisfactory record of its occurrence there, though we had often looked for it. In an adjacent and quite comparable station, Long Point, on Lake Erie and sixty miles to the east, we had heard that Saw-whets were at times captured in numbers by stretching old gill nets across the roads in the woods. The birds flying down the clear lanes became entangled in the meshes and thus caught. This was received from what seemed good authority and backed by so many specimens that we had decided to use the expedient in discovering the presence of the species on the Point. However, October 30, 1908, Swales, while working the Red Cedar (*Juniper virginiana*) thickets near the outer end of the Point discovered the fresh remains of two birds of this species. Later the same day Saunders found another in the same condition, and November 22 he found two fresh and several older remains. At the time, seeing the great devastation wrought to bird life by the Cooper

<sup>1</sup> Taverner and Swales. The Birds of Point Pelee, Ontario, Wilson Bulletin. 1907-1908.

Hawks, as shown by the numerous bunches of feathers scattered over the ground, we attributed the fate of the Saw-whets to this source; but even then we could hardly help wondering that this day-flying hawk could so successfully hunt such a secretive bird, living, as it naturally would during the day, in the dense masses of cedar where we had, by repeated observation, been led to suppose a bird was safe from hawk molestation.

The mystery, however, was cleared up, to our satisfaction at least, this last fall, October 15, 1910. While looking for warblers in these same red cedar thickets, Taverner discovered, by aid of the scattered plumage, the spot where another of these owls had met an untimely fate. With this incentive, we made a careful search that shortly resulted in Swales discovering what we looked for, half way up a small cedar and about seven feet from the ground. This he secured, but we had hardly properly papered the specimen for carrying when another was seen eating a mouse. On finding itself observed, it rose high up on its legs, leaned forward, and glared at the intruder, still holding the body of the mouse in its bill, exhibiting no fear and only evinced anxiety by following every movement with its golden eyes. Within less than two hours, and in a small part of the thickets, we discovered twelve of these owls. We looked carefully for the young, the *albifrons* plumage, but without success.

All birds seen were alert and the majority in the densest red cedar clumps. Most of them were close up against the trunk of their respective trees, and usually about six feet from the ground, the highest being about twelve feet, and the lowest four. None showed any fear. But one flushed, and that was only when the tree it was on was jarred in our passage; even then it flew but a few yards and allowed our close approach. None uttered any sound except the usual owlish snapping of the bill. We collected what we thought was a moderate number and returned to camp for a camera with which we returned later.

We separated on reaching the owl grounds and in about five minutes both had located owls. Taverner immediately set up the instrument to photograph his, but the situation was bad and a jar of the branch it was on, frightening the subject, it flew away and was not followed, but the paraphernalia was taken over to where

Swales was watching his specimen. The bird was rather high up and in the shade, and a couple of attempts were made to get a picture without satisfactory results. The camera was too low to get what we wanted so we spliced dead branches to the legs, using what was lying around handy for material. The straps from the carrying case and field glasses, three handkerchiefs, and the strings of a tobacco bag furnished the binding materials and the whole made an exceedingly wobbly stand, but it visibly raised the lens to an approximate level with the bird. With this bundle of apparatus we again tried, and drawing closer and closer we got the subject on the plate and finally made the exposure. Having got what we thought to be the best possible results, we experimented a bit to see how close the bird would let us approach. We got right under it by degrees and then raised our hand until it was even with it, and touched the branch at its side upon which it stood. Finally Swales attempted to stroke it on the back, but this was more than it would stand and it flew, but only a few feet, and lit on a horizontal branch almost in the open and in good light. The camera tripod was hurriedly restored to its former lengthy but wobbly condition, and with the front lens combination removed and the bellows extended to its farthest extent, an exposure of nine seconds was made. This was the only picture that proved really satisfactory, being the only one in which the instrument had remained steady. The seance ended in another attempt to touch the bird, and as it was getting late, we returned to camp.

Through the night we listened carefully for the peculiar call that gives the species its name, but without result. We were too busy with our specimens to go out the mile or so that separated us from the ground where we had found them, and we heard none nearby. The next morning we started out early to give Saunders a chance to see the remarkable sight, as he had been working another part of the Point the day before. We worked the whole end of the Point with great care, but except for the scattered remains of another unfortunate, saw not a sign of them. They had evidently departed in the night.

We saw in all, twelve birds; eight were found by diligent search, and the remainder we just ran on to. They were all quiet and so near the color and contour of other natural forms as to be most

inconspicuous. We covered but a small portion of the available likely-looking ground, and were actively searching not more than two hours. If our eyes picked up one quarter of those in sight we did well, and if the whole available territory was at that time as densely populated with Saw-whets as the small portion we worked, the total number of this rare species on the Point must have been very great.

There were very few Accipitres about this time, but there were accompanying the Saw-whets quite a number of Long-eared and Short-eared Owls. Allowing for repeated observation of the same individual, we saw six Long-eared and two Short-eared Owls. Beyond doubt, these larger and close relatives were the offending parties as they would be hunting at night at the only time when, in their foraging, the Saw-whet would be open to attack; and it is suggested that it is due to the depredations of the Long-eared Owl, which generally hunts the same thickets, that this beautiful little owl is so regularly rare as it is.

Here, then, are records of four migrational massings of this hitherto supposed resident owl. It was too early in the season to explain their gathering as "winter wandering in search of food," and the close tallying of all the dates point to the conclusion that from the middle to the end of October the Saw-whet Owls migrate in considerable numbers, but from their nocturnal habits and secluded habitats while en route are seldom observed. In all probability, too, such noticeable gatherings are only to be observed in such places as at Point Pelee where a constricted migration route brings many together at one time. Long Point is another place much like Pelee in this regard, and the Lake Huron episodes likely originated in other fly lines across that body of water and of which we as yet know nothing.

## THE ENGLISH SPARROW AS AN AGENT IN THE DISSEMINATION OF CHICKEN AND BIRD MITES.

BY H. E. EWING.

### OBSERVATIONS.

DURING the summer of 1905, while the author was engaged in making collections of various external parasites near Arcola, Ill., a large hay-barn was found in which a multitude of English Sparrows had nested. From the roof of the barn there extended upward a large cupola, the inside of which soon proved to be perfectly alive with sparrows. Numerous nestlings were found, either concealed in the some score of large, trashy nest-bundles, so characteristic of the species, and which occupied the various recesses and corners of the wooden structure, or, being now almost full-fledged, had fluttered out of the nests whence their ill spent attempts at flight had caused no small amount of concern on part of the parents. However, as is not usually the case, the sparrows evidently did not have complete possession of this veritable hatching house for their species for a few pigeons had also shared with them the use of this structure, and an examination revealed some three or four nests of these. Luckily for us collectors the cupola was provided with a trap door, so after entering the structure we were enabled to capture several of the live birds and examine them for parasites. None of these birds were killed, but a perfectly enormous number of parasites were secured, and among them was found a very great number of what seemed to be the common poultry louse, or chicken mite, *Dermanyssus gallinae* Redi. Later studies have fully established the correctness of this offhand determination.

Since the sparrow has been recognized for some time as being one of the many hosts of an allied species (*Dermanyssus avium* DeGeer), for a long while I was inclined to doubt that this mite was the real mite of poultry, yet the near proximity of the hay-barn to a chicken-house, which at least for some years had been known to be infested with the chicken mite, strongly suggested to

me the probability of this species being the one found on poultry.

During the summer of 1909, while a graduate student in the University of Illinois, I took up the study of these two species of mites mentioned. Arrangements were made with a couple of students to get me the sparrows, but they were unable to get many individuals. However, the author continued to collect what data there was to be obtained both at Urbana and Arcola, Ill. One day, to my surprise, a sparrow was found that had fallen upon the

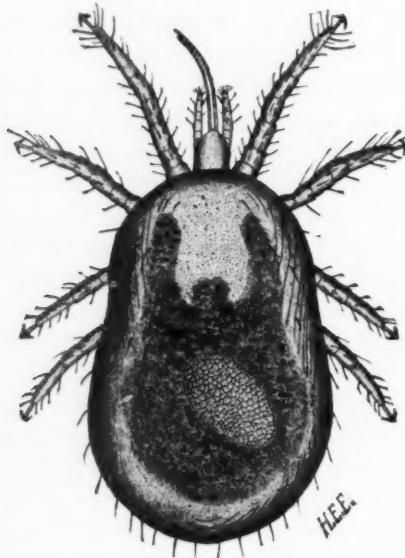


Fig. 1.—*Dermanyssus gallinae* Redi, the common chicken mite of poultry-houses. Dorsal view of female, much magnified.

grass of the campus, and upon examination it was seen to possess scores, if not hundreds, of *Dermanyssi*. The individual was weak, sickly, and exhausted, and evidently would soon have died from the effects of the attacks of these scores of mites. The bird was killed, however, and the mites collected. Examinations of these specimens later showed that they were no other than *Dermanyssus gallinae* Redi (Fig. 1), our common chicken mite. The work at the University was not completed, because as yet I had failed to get any accurate and reliable characters for the distinction of these

two closely related species of mites, although I had consulted all the literature available on the subject. Right here, it might be mentioned, that these two species are and have been constantly confused in the literature dealing with each of them.

During the summer of 1910, while at Ames, Ia., frequent reports came in, both from the town of Ames and from other points in the State, of the seriousness of the attacks of the chicken mite upon poultry. An investigation and inquiry in regard to the number of chicken-houses infested showed that while several were per-

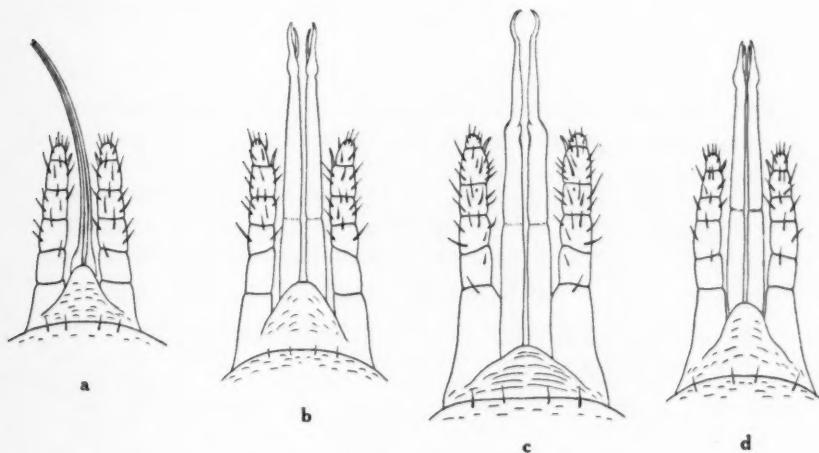


Fig. 2.—Mouth-parts of both males and females of the chicken and bird mites; all of the same magnification. *a*. Dorsal view of the mouth-parts of the female of the chicken mite, showing the long needle-like mandibles protruded. *b*. The same of the female of the bird mite. *c*. Dorsal view of the mouth-parts of the male of the chicken mite, showing the one long specialized arm of the chela. *d*. The same of the male of the bird mite.

fectly free from the chicken mite many were badly infested. On August 11 a rather large and recently deserted nest of the English Sparrow was found in an old wagon shed entirely separated from any adjoining buildings. This nest was procured and upon examination was found to harbor hundreds, even thousands of the chicken mites. Every feather found on the interior of the nest had scores of mites upon it. A medium sized feather which appeared to be only moderately infested proved to have 72 individuals

upon it. The number of feathers thus used in the construction of the nest was at least more than 200. I estimated them at 250. Multiplying this number by the number of individuals found on a single feather would give the total number of 18,000 individuals of the poultry mite found in only a single nest of the sparrow.

This case, though the worst found, will give some idea as to what are the possibilities of infestation of a chicken house or roost by means of the sparrow; and of the annoyance which these mites may give to other fowls or domestic animals, and, as I have found in one case, to man himself, when the mites are compelled to leave an abandoned sparrow nest and begin to wander and seek food elsewhere.

#### THE DIFFERENCES BETWEEN THE CHICKEN MITE AND THE BIRD MITE.

After studying some scores of mounted specimens, and after observing hundreds of live individuals of both of our common species of *Dermanyssus*, the author submits the following characters which are amply sufficient to separate the two:

##### *Dermanyssus gallinæ*

1. Mandibles of the female very long and needle-like, not chelate (Fig. 2, a). [By dorso-ventral pressure they may be protruded.]
2. Mandibles of male, seen to be chelate, but one of the arms of the chelæ especially long drawn out and curved (Fig. 2, c).
3. Females becoming, at times, much larger than the males, often as much as three times, due to engorgement with blood. Length may be over 1.00 mm.

##### *Dermanyssus avium*

1. Mandibles of female very slender but not needle-like, and seen to be distinctly chelate (Fig. 2, b).
2. Mandibles of the male, normal, and not differing essentially from those of the female (Fig. 2, d).
3. Females but little larger than males. Never over 1.00 mm. long.

#### INOCULATION TESTS.

Some time previous to the finding of the badly infested sparrow nest, a healthy young chicken was procured for experimental purposes. This chicken was kept in a large, clean goods box for a

cage. On July 20, 50 individuals of the bird mite, *Dermanyssus avium* DeGeer, were placed upon the chicken in the cage. These mites were taken from a young robin; plenty of them were also found on sparrows and mourning doves. On the 24th, four days later, a careful examination was made of the chicken, but not a single one of the mites were to be found. The same results were obtained on the 28th and again on August 2. On August 11, three weeks after the original inoculation, not a sign of a mite could be found either upon the chicken, or in the cracks of the box, although if the chicken should have been a natural host to the bird mite, every opportunity for the establishment of the species would have been at hand.

On August 11, the chicken was now inoculated with individuals of *Dermanyssus gallinæ* Redi, taken from the sparrow nest. An examination on the 12th and 13th showed the chicken to be covered with the mites, many of which were next to the skin and feeding. The mites continued to feed upon the chicken and multiplied by the hundreds, even thousands. In the cracks of the box and in old knot-holes they could be found sometimes a quarter or half inch deep. During this time the chicken had become greatly annoyed, and at times would be almost constantly busy scratching itself with its bill. It lost weight rapidly, and became very sickly in appearance.

On August 20 many of these mites were taken from the chicken and used to inoculate an English Sparrow which had been kept in confinement, and was free from *Dermanyssus gallinæ* Redi. The mites at once began to annoy and feed upon the sparrow. In fact their attacks became so vigorous that the bird soon succumbed, and upon examination after death, before it had become cold, many individuals were found upon its skin and feeding.

Having thus established the fact that the mites found in the sparrow's nest could be inoculated upon the chicken, that the same mites after feeding for a long period upon the chicken could again be inoculated upon the sparrow, I made some observations for testing the ability of *Dermanyssi* to travel when off of a host, and upon the length of time which they could live when entirely without food. Many individuals of *Dermanyssus avium* were confined in a small glass cell entirely without food. They apparently did

not suffer from the abstinence for at least two days, and upon an examination four days later, several individuals were found to be yet alive.

Individuals from both species when placed on the top of a clean table could be found ten minutes later on the floor and at a considerable distance away. Thus within a period of four days it would be seen that these creatures could travel for no inconsiderable distances, as they evidently do when food becomes scarce. From this it would follow that chickens nesting in barns, outhouses, in chicken coops placed near the bases of trees, or in hen-houses in which sparrows were allowed to build would be especially subject to inoculation from the deserted sparrow nests.

#### SUMMARY.

1. The English Sparrow frequently harbors and is the host of one of our worst, if not the worst, of poultry pests, the chicken louse or chicken mite, *Dermanyssus gallinae* Redi.

2. Sparrows become repeatedly inoculated with these mites from the chicken roosts because of their habit of lining their nests with poultry feathers, many of which have lice upon them, shaken off of the infested chickens when wallowing in the dust, etc.

3. Sparrow nests when built in the vicinity of chicken roosts, upon becoming deserted may leave hundreds or thousands of lice, to seek food and shelter elsewhere. These individuals being very active on their feet and able to sustain themselves for several days away from a host may travel considerable distances and infest new chicken-houses.

4. The English Sparrow likewise harbors and is the host of perhaps the most important of all the external parasites of our native song birds, and likewise of our tamed cage birds, the bird mite, *Dermanyssus arium* De Geer.

## THE COURTSHIP AND MIGRATION OF THE RED-BREASTED MERGANSER (*MERGUS SERRATOR*).<sup>1</sup>

BY CHARLES W. TOWNSEND, M. D.

THE Red-breasted Merganser or Sheldrake, as it is commonly called on the New England coast, is an interesting and at some seasons an abundant bird. Like the Whistler and the Eider,<sup>2</sup> this duck has a spectacular and distinctive courtship display.

The nuptial performance is always at its best when several drakes are displaying their charms of movement, voice and plumage, before a single duck, and each vies with the other in the ardor of the courtship. The drake begins by stretching up his long neck so that the white ring is much broadened, and the metallic green head, with its long crest and its narrow red bill, makes a conspicuous object. At once the bill is opened wide and the whole bird stiffly bobs or teters as if on a pivot, in such a way that the breast and the lower part of the neck are immersed, while the tail and posterior part of the body swing upward. This motion brings the neck and head from a vertical position to an angle of forty-five degrees. All the motions are stiffly executed, and suggest a formal but ungraceful courtesy.

For many years I have seen this performance more or less imperfectly in the spring, but, owing to the distance of the birds or the direction of the wind, I have been unable until recently to hear the nuptial song that the open mouth of the bird led me to expect. On April 19 last, however, the conditions were most favorable, and, in company with Mr. Francis H. Allen, I not only saw but heard the courtship performance repeated many times at Ipswich. Concealed behind some bushes at the foot of Castle Hill at the mouth of the Ipswich River with a gentle wind blowing towards us, we watched and listened to the birds within two or three hundred yards of us for over half an hour. Again on April 30 I had a similar but less favorable opportunity. My notes of the nuptial movements correspond with those taken several times before

<sup>1</sup> Read before the Nuttall Ornithological Club, May 15, 1911.

<sup>2</sup> Auk, XXVII, 1910, pp. 177-181.

when the birds were seen performing off the beach, but when, owing to the distance and the roar of the surf, their nuptial song had been inaudible.

This *song*, emitted when the bill is opened, is a difficult one to describe, but easily recognized when once heard, and remains long in the memory after one has heard it repeated over and over again by a number of Merganser suitors. It is a loud, rough and purring, slightly double note which I wrote down *da-ah*, but the note is probably insusceptible of expression by syllables.

The bobbing and the love-note may be given twice in rapid succession although at times the performance is a single one, or may consist of an extensive bob, preceded by a slighter but similar one. The performance is, however, repeated at frequent or infrequent intervals, depending on the ardor and number of the suitors, and, no doubt, on the attitude of the modestly dressed lady.

Although the female merganser may remain passive and coyly indifferent, as is the habit of her sex, she sometimes responds by a bobbing which is similar to that of the male, but of considerably less range. That is to say the neck is not stretched so straight up, and the breast is not so much depressed during the bob. She emits a single note at this time, which is somewhat louder than that of the male and is of a different quality as it is decidedly rasping. As nearly as I can remember this note is similar to the rough croaks I have heard given by these birds in Labrador when they were flying to and from their nests.

When the female responds in this manner she appears to be very excited, and the ardor of the drakes is correspondingly increased, if one may judge by the frequent repetition of the love antics and notes, and by the fact that they crowd about the duck. Every now and then she darts out her neck and dashes at the ring of suitors, just as the female English Sparrow does under similar circumstances.

The bobbing up of the stern of the male is the more conspicuous as the wings are then apparently slightly arched upwards, so that the white secondary feathers are very prominent. These show at all times as the male swims in the water, but in the female they are generally but not always invisible.

During the courtship actions the tail is elevated at an angle of forty-five degrees, and it may or may not be widely spread at the same time. In one case the male kept the tail permanently erected and spread during the intervals as well as during the actual antics. This bobbing courtship of the males, although sometimes directed towards the female, is as often directed towards another male or even the empty water.

The males not infrequently rush at one another with powerful leg-strokes making the water foam about their elevated breasts. Sometimes they raise their wings slightly or splash along violently using both wings and feet for propulsion. Now and then a male pursues a female, and she, to avoid capture, may dive and is at once followed by the male. In flight the female generally precedes by a short interval the male. Out of fifteen pairs observed in flight on April 20, 1907, in twelve the female flew first. In Labrador I found this sequence was the rule among courting Eiders except when the pair were startled, when the drake ungallantly outsped the duck. As far as I have observed there is no display of the feet with the accompanying spurting of the water as in the case of the Whistler.

The positions often assumed by Mergansers, both male and female, with the neck stretched flat along the surface of the water as they swim, and with the bill partially immersed as if they were straining the water for food, or with all of the head below the water except the crest as if they were looking for fish, are, I believe, not parts of the nuptial performance and are common at all seasons. So also the momentary erect position with flapping wings is common at all times of the year, although its advantages for display leads me to think that at times it forms part of the courtship actions. This is especially the case when the bird rises up, as he sometimes does, with wings close to the side, and recalls the similar actions of the Eider in displaying his black belly-shield.

The migration of the Red-breasted Merganser is an impressive one on account of their numbers, but there are some interesting points in the distribution of the sexes and of the immature birds and adults that are well worth study. I am inclined to believe from an examination of the figures in my records for the last ten years that this bird has of late considerably increased in numbers.

The largest number I ever saw at Ipswich was on October 23, 1910, when Mr. F. H. Allen and I estimated, and we believe conservatively, twenty thousand Red-breasted Mergansers off the beach. Better enforcement of the game laws, and especially the establishment of a close season in the late winter and spring, are I believe the chief reasons for this increase. I am also of the opinion that we owe a great deal to M. Meunier, the great French chocolate king, for his exclusion of guns from the island of Anticosti, which has become his property,—an island that thus forms a splendid breeding sanctuary for Mergansers, Black Ducks, Yellow-legs and other water birds.

The Red-breasted Merganser does not breed in Essex County, but it is not uncommon to find two or three birds, presumably sterile, throughout the summer at Ipswich. The species begins to arrive from the north the last of September, and becomes common and then abundant in October. The great throngs of birds in this month appear to be made up almost exclusively of birds in the female or immature plumage. In the latter part of the month and in November many are to be seen changing into the beautiful dress of the adult male, while by the last of December and throughout January and February it is comparatively rare to see a bird in female attire. Thus on January 24, 1904, out of some five hundred Mergansers I could count only six in the female plumage. In March the females put in an appearance, and courting begins, and by the last of April and in May the birds are largely paired, although flocks of either or both sexes are common. Many of the birds remain late in May before migrating for the north. Thus on May 14, 1905, I saw 200 Red-breasted Mergansers at Ipswich, 42 on May 20, 1904, and 32 on May 26, 1907. Some at least of the immature males are slow in changing to adult plumage, and males in nearly complete immature dress with only a few greenish feathers about the head are seen and have been shot in April and May. Whether these birds complete the nuptial moult that year or not until the next year I am unable to say.

So much for the plumage and sexes of the birds at the various seasons. In numbers they are the greatest in the latter part of October and in November. In December, January and February they are fairly constant in numbers but considerably less than in

the fall, while in the spring their ranks again increase but never equal the multitudes of the fall.

The explanation of all this is interesting and I believe sufficiently apparent. The great flocks of birds in the fall in somber plumage are made up of immature birds, of adult females, and of the adult males in the eclipse plumage. In November the adult males moult into the nuptial plumage, while the females and young leave for the south, so that during the winter months practically all the birds are adult males in full plumage. Whether the exceptions are females or immature males or both I cannot say. In March and April the females return from the south as well as the immature males, which have not moulted into adult plumage, together with some adult males.

The southern side of this picture which rounds out and corroborates my northern observations has been given me by Mr. Wm. Brewster who said that in Florida in winter he had seen large flocks of female and immature Red-breasted Mergansers, and by Mr. Arthur T. Wayne, who, in his 'Birds of South Carolina,' 1910, page 13, says of this species: "From the time when these fish-eating ducks arrive until the first week in February the adult drakes are seldom, if ever, seen, but towards the second week in February they make their appearance in large numbers."

The old males brave the rigors of the northern climate, while the females and young seek warmer regions during the winter, but it would seem as if some of the impatient suitors were unable to await the return of their partners from the south, and must needs go and fetch them.

## OTHER EARLY RECORDS OF THE PASSENGER PIGEON.

BY ALBERT HAZEN WRIGHT.

SINCE the appearance of the first article,<sup>1</sup> under a similar caption, the author has felt we should strive to assemble all the material extant concerning this extinct or near-extinct species. A systematic endeavor has been made to peruse most of the North American historical sources (county and town histories omitted) which would presumably yield notes concerning this form. No doubt this supplement will be far from complete from the biological point of view, but this and its predecessor are meant to be sidelights to the customary ornithologic literature from which we have not drawn. Of the period after 1860, many older ornithologists can speak from personal experience far better than the writer, hence the omission of such material.

If the laudable quest for survivors of the species prove not forlorn, we trust our boasted humanity will hold the protection of this beautiful bird to be a most sacred trust,—an attitude rarely taken in the day of its abundance. Immediate desires and absolute thoughtlessness reigned supreme so that cases like the temporary insanity of J. B. Booth, the actor, and the extreme solicitation of Thomas L. McKenney, the traveller, were unfortunately held up to ridicule rather than admiration.

In the first instance, Booth while acting in Louisville (Jan. 4, 1834), wrote James Freeman Clarke<sup>2</sup> asking if he could help him to find "a place of interment for his friend (s) in the church-yard." Clarke went immediately to Booth. Upon inquiries concerning his friend, the actor apparently changed the subject and proceeded to read Coleridge's 'Ancient Mariner,' following this with remarks on Shelley's argument against the use of animal food. Then, he argued his point by "texts selected skillfully here and there from Genesis to Revelation." At last he inquired if Clarke "Would . . . like to look at the remains?" And, imagine Clarke's surprise

<sup>1</sup> Auk, Vol. XXVII, October, 1910, pp. 428-443.

<sup>2</sup> Clarke, James Freeman. *Memorial and Biographical Sketches.* Boston, 1878, pp. 263-276.

when he beheld, "spread out upon a large sheet," "about a bushel of wild pigeons." "In a day or two," Booth "actually purchased a lot in the cemetery, two or three miles below the city, had a coffin made, hired a hearse and carriage, and had gone through all the solemnity of a regular funeral." "During the week immense quantities of the wild pigeon [Passenger Pigeon, *Columba migratoria*] had been flying over the city, in their way to and from a roost in the neighborhood. These birds had been slaughtered by myriads, and were for sale by the bushel at the corners of every street in the city. Although all the birds which could be killed by man made the smallest impression on the vast multitude contained in one of these flocks,—computed by Wilson to consist sometimes of more than twenty-two hundred millions,—yet to Booth the destruction seemed wasteful, wanton, and, from his point of view, was a willful and barbarous murder."

The other incident happened August 14, 1826, while McKenney was crossing Lake Superior in a storm. He describes it as follows:<sup>1</sup> "At six o'clock, and when about three-fourths of the way across, the lake growing white with foam, and the steersman calling for help to keep the canoe from being blown round side to the sea, which is generally afforded by two or three of the voyageurs striking their paddles down by the side of the canoe, and the bowsman working his the contrary way, a bird was seen coming across the lake, feeble in its efforts, and directing its course towards our canoes. It passed Mr. Holliday's, and on getting in a line with mine, turned and followed it. It appeared to make one last effort, and with its feet foremost, lit on the end of the upper yard, when instantly one of the voyageurs raised his paddle saying, 'mangé-mangé,' and in the act of giving the bird the meditated stroke, I caught his arm, and prevented it. I then ordered the steersman to untie the rope, which, passing through the top of the mast, was tied near him, when the sail was lowered, and the bird taken and handed to me. It was too feeble to fly. Its heart beat as if it would break. I took some water from the lake with my hand, into my mouth, put the bill of the little wanderer there, and it drank as much as would have filled a table spoon—then

<sup>1</sup> McKenney, Thomas L. *Sketches of a Tour to the Lakes, etc.* Baltimore, 1827, pp. 352, 353.

breaking up some crackers, I fed it. My next difficulty was to fall upon some plan for taking it home. It seemed to have sought my protection, and nothing shall cause me to abandon it. On looking around me, the mocoock that the Indian woman gave me struck my sight. It was the only thing in the canoe in which it was possible to put it. So I have given it a lodgment in that. It is a wild pigeon, nearly full grown, and is perhaps the only survivor of a flock from Canada. Thousands of them perish in crossing every season, and I am told they are often seen on the lake shore fastened together by their feet, looking like ropes of onions. The lake, in the direction in which this one came, must be at least sixty miles across.

"This is a member of the dove family, and the 'travelled dove' of the voyage. Is it a messenger of peace? — Why did it pass one canoe, and turn and follow another? — Why come to me? — None of these questions can be answered. But of one thing this poor pigeon is sure — and that is, of my *protection*; and though only a pigeon, it came to me in distress, and if it be its pleasure, we will never part." In a footnote the writer adds: "This pigeon, called by the Chippeways *Me-me*, and by which name, it is called, is yet with its preserver — tame, and in all respects domesticated. It knows its name, and will come when called."

This collection of records is classified according to regions, and the notes are arranged chronologically under each.

#### *Canada.*

The first country to be considered is naturally Canada, the former home of the breeding pigeon. The account begins with 'The First Relation of Jaques Cartier of S. Malo, 1534' in which<sup>1</sup> "stockdoves" are recorded at Cape Kildare. In 1535-36, on the second voyage up the St. Lawrence, he finds: "There are also many sorts of birds, as . . . Turtles, wilde Pigeons, . . ." In the same region, in 1542, John Alphonse of Xanctoigne, chief pilot to Roberval, notes<sup>2</sup> "Fowle . . . in abundance, as . . . turtle doves, . . ."

<sup>1</sup> Original Narratives of Early American History. Early English and French Voyages. New York, 1906, pp. 17, 71.

<sup>2</sup> Hakluyt, Richard. The Principal Navigations Voyages Traffiques and Discoveries of the English Nation. Glasgow, 1903-5. Extra Series, Hakluyt Society, Vol. VIII, p. 282.

About forty years later (1583), Sir George Peckham in his report of the discoveries of Sir Humfrey Gilbert in Newfound Lands, mentions<sup>1</sup> "Stocke dooves" as one "Of [the] Birds." In a narrative of the same expedition, Captain Edward Haies records<sup>2</sup> "rough footed like doves, which our men after one flight did kill with cudgels, they were so fat and unable to flie." In 1607 Marke Lescarbot, in speaking of Ile Saint Croix, not far from Port Royal, says:<sup>3</sup> "We made there also good Pasties of Turtle Doves, which are very plentifull in the Woods, but the grasse is there so high that one could not find them when they were killed and fallen in the ground." In the 'Third Voyage of Sieur de Champlain, in the year 1611,' at the Falls of St. Louis:<sup>4</sup> "Once on St. Barnabas's day, Sieur du Parc, having gone hunting with two others, killed nine [stags]. They had also a very large number of pigeons." In 1623<sup>5</sup> "Pigeon" is mentioned as one of the many sorts of birds all along the Nova Scotian coast. The last note of this century is by Sagard Theodat who says,<sup>6</sup> "There are....an infinite number of Turtle-doves, which they call Orittey, which feed in part on acorns which they readily go at whole, and in part on other things."

Towards the close of the eighteenth century, we have three notes, the first of which comes in 1770 when Wynne says that the<sup>7</sup> "Canadians have variety of game,....vast flights of wild pigeons, ...." The second record is one made by Madame De Riedesel, who writes as follows:<sup>8</sup> "On passing a wood, I was suddenly roused from my reveries, by something that seemed like a cloud before our carriage, until I discovered that it was a flight of wild pigeons, of which there are such an abundance in Canada, that they are for many weeks the exclusive food of the inhabitants, who

<sup>1</sup> *Ibid.*, p. 115.

<sup>2</sup> Prince Society Publications, Vol. XXXI, p. 136.

<sup>3</sup> Purchas, Samuel. *Hakluytus Posthumus or Purchas His Pilgrimes.* Glasgow, 1905-7. Hakluyt Society, Extra Series, Vol. XVIII, p. 282.

<sup>4</sup> Prince Soc. Publ., Vol. XIII, pp. 85, 86.

<sup>5</sup> Purchas, Samuel, *Ibid.*, Vol. XIX, p. 399.

<sup>6</sup> Sagard Theodat, G. *Le Grand Voyage du Pays des Hurons*, 1632. Second Partie, Chapter I, p. 303.

<sup>7</sup> Wynne, J. H. *A General History of the British Empire in America:* 2 vols., London, 1770, Vol. II, p. 208.

<sup>8</sup> De Riedesel, Madame. *Letters and Memoirs Relating to the War of American Independence, etc.* (orig. edit., 1800). Translated by M. de Wallenstein, New York, 1827, pp. 126, 127.

shoot them with fowling-pieces, loaded with the smallest shot. Upon perceiving a flock, the Canadian hunter shouts, which makes the pigeons start all at once, so that by shooting at random, sometimes two or three hundred are wounded, and afterwards knocked down with sticks. The hunters sell a part, and keep the remainder for their own use; and these birds furnish soups and fricassees, which are usually dressed with a cream sauce and small onions [chives]. During the shooting season, pigeons are on every table." (June 16, 1777.) The third and last note<sup>1</sup> is a mere notice of a pigeon which flew by Mackenzie when in the Slave Lake region.

In the nineteenth century the record begins the very first year, 1800, when Harmon the North West fur trader mentions<sup>2</sup> the pigeons in two or three instances. On May 9, 1800, while at Au Chat he observes: "We arrived this morning, at this place, where the North West Company have a small establishment; and I have passed the afternoon, in shooting pigeons." August 2, 1800, the Mouth of the River Winipick: "The after part of the day, I spent in shooting pigeons, which I found to be numerous, as at this season, red raspberries, and other kinds of fruit, are ripe, and exist here in abundance." In the following year, May 2, at Montagne Aiseau (or Bird Mountain) he says, "Of fowls, we have . . . pigeons . . ." Six years later, in 1807, George Heriot describes the species as follows:<sup>3</sup> "The wood-pigeons are so multitudinous, that at certain seasons they obscure the atmosphere in parts of the country which are not much settled, and are frequently knocked down in great numbers, by means of long poles. Their flight is so rapid, that when two columns, moving in opposite directions at the same height in the atmosphere, encounter each other, many of them fall to the ground, stunned by the rude shock communicated by this sudden collision. Shot, if fired as they approach, will seldom

<sup>1</sup> Mackenzie, Alexander. *Voyages from Montreal on the River St. Laurence, through the Continent of North America, to the Frozen and Pacific Oceans in the Years 1789 and 1793.* London, 1801, p. 81.

<sup>2</sup> Harmon, Daniel Williams. *A Journal of Voyages and Travels in the Interior of North America, between the 47th and 58th Degrees of N. Latitude, extending from Montreal to the Pacific, etc.* New York, edit. 1903, pp. 4, 22, 63.

<sup>3</sup> Heriot, George. *Travels through the Canadas, etc.* London, 1807, pp. 517, 518.

make any impression on them; the only certain method of bringing them to the ground is by firing immediately after they pass. A considerable of the produce of the cultivated lands was some years ago devoured by these birds, and wherever they rested, they appeared to cover, like leaves, a great part of the trees of the forest."

From 1800 to 1810 Alexander Henry made several notes on the pigeon, particularly in western Canada. When near Winnepeg August 19, 1800:<sup>1</sup> "Pigeons were in great numbers; the trees were every moment covered with them, and the continual firing of our people did not appear to diminish their numbers." On April 22, 1801, he saw "Pigeons flying N. in great numbers." Shortly after, May 19, at Rat River, he killed a pigeon. At Pembina River Post, May 4, 1804, were "Extraordinary numbers of wild pigeons; I never before saw so many." When he approached Isle de la Traverse, August 21, 1808, "Pigeons were plentiful on our arrival, but they instantly left." Two days later, at Pine Island, he says, "We shot....some pigeons, of which we saw great numbers." Lastly, August 31, 1810, at New White Earth House, he finds "Pigeons are passing N. to S. in immense flocks, particularly in the morning and evening."

About the same time Hugh Gray, in a letter from Quebec, writes:<sup>2</sup> "During the summer the woods of Canada abound with birds of a great variety of sorts and sizes,.... Some of these pass the whole summer in Canada; others, such as the pigeons, are only found at certain seasons, as they pass from the southern to the more northerly parts of the American continent and vice versa."

In 1820, Sansom, in Lower Canada, also found these<sup>3</sup> "wild-pigeons, in inconceivable abundance." In 1832 Joseph Bouchette, in his 'The British Dominions in North America,' etc., 2 vols., London, 1832 (Vol. II, p. 145), found that pigeons furnished objects for the sportsman in New Brunswick, as did Godley when at Kingston (August); he says, that the pigeons are<sup>4</sup> "important objects of an American chasse."

<sup>1</sup> Henry, Alexander, and Thompson, David. *The Manuscript Journals of 1799-1814.* Edited by Elliott Coues. 3 vols., New York, 1897. Vol. I, pp. 46, 176, 183, 243; Vol. II, 467, 469, 622.

<sup>2</sup> Gray, Hugh. *Letters from Canada, written during a residence there in the Years 1806, 1807, and 1808; etc.* London, 1809, pp. 245, 246.

<sup>3</sup> Sansom, Joseph. *Travels in Lower Canada, etc.* London, 1820, p. 49.

<sup>4</sup> Godley, John Robert. *Letters from America.* 2 vols., London, 1844. Vol. I, p. 126.

In 1848 (July 27) Paul Kane, when in the Winnipeg region,<sup>1</sup> "found immense flocks of wild pigeons, and killed a good supply." Ten years later, in the same region, Henry Y. Hind noted<sup>2</sup> (June 10, 1858): "In a wheat field opposite St. James' Church were several pigeon traps, constructed of nets 20 feet long by 15 broad, stretched upon a frame; one side was propped up by a pole 8 feet long, so that when the birds passed under the net to pick up the grain strewed beneath, a man or boy concealed by the fence withdrew the prop by a string attached to it, and the falling net sometimes succeeded in entrapping a score or more of pigeons at one fall. Near the net some dead trees are placed for the pigeons to perch on, and sometimes stuffed birds are used as decoys to attract passing flocks." In three other instances the expedition found these birds. When west of Blue Hills, June 30, 1858, "Vast numbers of pigeons were flying in a north-westerly direction, . . ." At Qu'Appelle River, July, 1858, "pigeons were calmly and listlessly perched on the dense trees, having eaten plentifully of their favorite fruits"; and finally, between the South and Main branches of the Saskatchewan, they recorded the pigeon August 5, 1858.

In his 'Maple Leaves,' etc. (Quebec, 1863-5), J. M. LeMoine says (p. 96): "Wild pigeon shooting, especially in western Canada, yields an abundant harvest. The passenger pigeon still resorts to the Niagara district in such quantities that Audubon's graphic description of the flights of wild pigeons in Kentucky ceases to appear overdrawn. Until 1854, there existed in the woods back of Chateauguay, at a place called the Five Points, a pigeon roost; the devastation caused by this countless host in the wheat fields became very great, but in presence of the incessant attacks of man, a general pigeon stampede took place — the roost is now deserted."

In 1869 Wm. Canniff writes of this species as follows:<sup>3</sup> "Sheriff Sherwood, . . . remarks: 'I recollect seeing pigeons flying in such numbers that they almost darkened the sky, and so low often as to be knocked down with poles; I saw, where a near neighbor

<sup>1</sup> Kane, Paul. *Wanderings of an Artist among the Indians of North America from Canada to Vancouver's Island and Oregon, etc.* London, 1859, p. 438.

<sup>2</sup> Hind, Henry Y. *Northwest Territory. Report on the Assiniboine and Saskatchewan Exploring Expedition.* Toronto, 1859, pp. 39, 40, 43, 61, 65.

<sup>3</sup> Canniff, Wm. *History of the Settlement of Upper Canada (Ontario, etc.).* Toronto, 1869, p. 201.

killed thirty at one shot, I almost saw the shot, and saw the pigeons after they were shot.'" This same year Coffin, when in the Red River country, says that one day,<sup>1</sup> "While pitching our tents, a flock of pigeons flew past, and down in the woods along the bank of the river we could hear their cooing. Those who had shot-guns went to the hunt."

The last notice of the pigeon to be given is an extended account by Geikie, who writes:<sup>2</sup> "The flocks of pigeons that come in the early spring are wonderful. They fly together in bodies of many thousands, perching, as close as they can settle, on the trees when they alight, or covering the ground over large spaces when feeding. The first tidings of their approach is the signal for every available gun to be brought into requisition, at once to procure a supply of fresh food, and to protect the crops on the fields, which the pigeons would utterly destroy if they were allowed. It is singular how little sense, or perhaps fear, such usually timid birds have when collected together in numbers. I have heard of one man who was out shooting them, and had crept close to one flock, when their leaders took a fancy to fly directly over him, almost close to the ground, to his no small terror. Thousands brushed past him so close as to make him alarmed for his eyes; and the stream still kept pouring on after he had discharged his barrels, right and left, into it, until nothing remained but to throw himself on his face till the whole had flown over him. They do not, however, come to any part of Canada with which I am acquainted in such amazing numbers as are said by Wilson and Audubon to visit the western United States.

"A curious fact respecting them is that they have fixed roosting-places, from which no disturbance appears able to drive them, and to these they resort night by night, however far they may have to fly to obtain food on the returning day . . . .

"I myself have killed thirteen at a shot, fired at a venture into a flock; and my sister Margaret killed two one day by simply throwing up a stick she had in her hand as they swept past at a point where we had told her to stand, in order to frighten them

<sup>1</sup> Coffin, Charles Carleton. *The Seat of Empire.* Boston, 1870, p. 59.

<sup>2</sup> Geikie, John C. *Adventures in Canada; or Life in the Woods.* Philadelphia, pp. 212-216.

into the open ground, that we might have a better chance of shooting them. I have seen bagfuls of them that had been killed by no more formidable weapons than poles swung right and left at them as they flew close past. The rate at which they fly is wonderful, and has been computed at about a mile a minute, at which rate they keep on for hours together, darting forward with rapid beats of their wings very much as our ordinary pigeons do."

*New England.*

In New England, Champlain seems to be the first (July 12, 1604) to record the Wild Pigeon. Of an Island Harbor in latitude  $43^{\circ} 25'$  near Cape Porpoise, he says:<sup>1</sup> "There are in these islands so many red currants that one sees for the most part nothing else, and an infinite number of pigeons, of which we took a great quantity." The year following, 1605, James Rosier wrote<sup>2</sup> 'A True Relation of the Voyage of Captaine George Waymouth' where, in his "A Briefe Note of what Profits we saw the Country yeld in the small time of our stay there," he enumerates "Turtle-doves."

In 1622, Captain John Smith reports,<sup>3</sup> "great flocks of Turkies, . . . Pigeons," etc. The same year, we have another note which says:<sup>4</sup> "The country aboundeth with diversity of wild fowl, as . . . many doves, especially when strawberries are ripe." A few years later, March 12, 1631, Gov. Dudley, in a "Letter to the Countess of Lincoln," thinks of the vast flights as omens. He writes as follows:<sup>5</sup> "Upon the eighth of March, from after it was fair day light, until about eight of the clock in the forenoon, there flew over all the towns in our plantations, so many flocks of doves, each flock containing many thousands, and some so many, that they obscured the light, that it passeth credit, if but the truth should be written; and the thing was the more strange, because I scarce

<sup>1</sup> Champlain, Sieur de, *Voyages of Voyage in the year 1604.* The Publications of the Prince Society, Vol. XII, 1878, Boston, pp. 68, 69.

<sup>2</sup> Original Narratives of Early American History, Vol. II, New York, 1906, p. 393.

<sup>3</sup> Smith, Capt. John, *Works of 1608-1631.* Edited by Edward Arber. New England Trials, London, 2nd edition, p. 261.

<sup>4</sup> A Brief Relation of the Discovery and Plantation of New England. London, 1622. Mass. Hist. Soc. Coll., Second Series, IX, 1822, p. 18.

<sup>5</sup> Mass. Hist. Soc. Coll., VIII, 1802, p. 45.

remember to have seen ten doves since I came into the country: they were all turtles, as appeared by divers of them we killed flying, somewhat bigger than those of *Europe*, and they flew from the north-east, to the south-west; but what it portends, I know not."

In 1634 we find the first extended notice of the pigeons of New England. Wood describes them at some length:<sup>1</sup> "The Pigeon of that Countrey, is something different from our Dove-house Pigeons in *England*, being more like Turtles, of the same colour; but they have long tayles like a Magpie: And they seeme not so bigge, because they carry not so many feathers on their backes as our *English* Doves, yet are they as bigge in body. These Birds come into the Countrey, to goe to North parts in the beginning of our Spring, at which time (if I may be counted worthy, to be believed in a thing that is not so strange as true) I have seene them fly as if the Ayerie regiment had beene Pigeons; seeing neyther beginning nor ending, length, or breadth of these Millions of Millions. The shouting of people, the ratling of Gunnes, and pelting of small shotte could not drive them out of their course, but so they continued for foure or five houres together: yet it must not be concluded, that it is thus often; for it is but at the beginning of the Spring, and at *Michaelmas*, when they returne backe to the Southward; yet are there some all the yeaer long, which are easily attayned by such as looke after them. Many of them build amongst the Pine-trees, thirty miles to the North-east of our plantations; joyning nest to nest, and tree to tree by their nests, so that the Sunne never sees the ground in that place, from whence the *Indians* fetch whole loades of them."

In the well known 'New English Canaan' (Amsterdam, 1637), by Thomas Morton, he in his general survey of the country says it<sup>2</sup> "Contained . . . Millions of Turtledoves one the greene boughes, which sate pecking of the full ripe pleasant grapes that were supported by the lusty trees, whose fruitfull loade did cause the armes to bend." Six years later (1643), Roger Williams's 'Key into the Language of America' appeared in London.<sup>3</sup> Of the "Wuskowhan-

<sup>1</sup> Wood, William. *New Englands Prospect.* London, 1634. Prince Society Publications, Vol. I, 1865, p. 31, 32.

<sup>2</sup> Prince Soc. Publications, Vol. XIV, p. 180.

<sup>3</sup> Colls. R. I. Hist. Soc., Vol. I, p. 87; also Mass. Hist. Soc. Coll., First Series, Vol. III, p. 220.

nanaūkit; Pigeon Country" he writes: "In that place these fowle breed abundantly, and by reason of their delicate food, especially in Strawberrie time, when they pick up whole large Fields of the old grounds of the Natives, they are a delicate fowle, and because of their abundance, and the facility of killing them, they are and may be plentifully fed on."

In the early history of the Plymouth Colony, the pigeons became at times a menace, as Winthrop shows. Of the years 1643 and 1648 he particularly speaks.<sup>1</sup> "The immediate causes of this scarcity [of corn] were the cold and wet summer, especially in the time of the first harvest [in 1643]; also, the pigeons came in such flocks (above 10,000 in one flock), that beat down, and eat up a very great quantity of all sorts of English grain: . . . ."

"This month [August, 1648], when our first harvest was near had in, the pigeons came again all over the country, but did no harm, (harvest being just in) but proved a great blessing, it being incredible what multitudes of them were killed daily. It was ordinary for one man to kill eight or ten dozen in half a day, yea five or six dozen at one shoot, and some seven or eight. Thus the Lord showed us, that he could make the same creature, which formerly had been a great chastisement, now to become a great blessing."

Barber, much later (1841), practically repeats the same as follows:<sup>2</sup> "The very wet weather of 1642 produced a dearth of corn in Boston in the spring of 1643, myriads of pigeons appeared the same season and did much injury. It is an old observation in America, that pigeons are uncommonly numerous in the spring of sickly years."

In 1648 we have our first metrical observation where the author begins of summer as follows:<sup>3</sup>

"Bespread with Roses Sommer 'gins take place with hasty speed,  
Whose parching heate Strawberries coole doth moderation breed.  
Ayre darkening sholes of pigeons picke their berries sweet and good."

<sup>1</sup> Winthrop, John. *The History of New England from 1630 to 1649.* Edited by James Savage. 2 vols., Boston, 1825, 1826. Vol. II, pp. 94, 331, 332.

<sup>2</sup> Barber, J. W. *The History and Antiquities of New England, New York and New Jersey, etc.* Worcester, 1841, p. 474.

<sup>3</sup> *Good News from New-England: etc.* London, 1648. Mass. Hist. Soc. Coll., Fourth Series, Vol. I, 1852, p. 202.

The final note in the seventeenth century comes in 1680 when Hubbard says<sup>1</sup> that the "pigeons, (that come in multitudes every summer, almost like the quayles that fell round the campe of Israel in the wilderness,) . . . by nature's instinct, or by conduct of Divine Providence, have found the way into these endes of the earth, . . ."

In the eighteenth century the first record is December 11, 1707, when Samuel Sewall, in his Diary (1674-1729), observes that<sup>2</sup> "Yesterday I was told of a vast number of Pigeons in the Woods this Moneth. Capt. Mills at his Sister's Wedding says he saw an incredible Number at Woodstock last Friday."

A considerable period intervenes before we come to the records of Revs. Smith and Deane who, at Portland, Me., kept Diaries from 1722-1787. Their entries follow:<sup>3</sup>

"1733. August Pigeons very plenty. We kill more than we can eat."

"1744, August 20. I don't remember that pigeons were ever so plenty as now."

"1744 August 28 Gunning after pidgeons, which increase in plenty. I brought home ten dozen in my chaise."

"1752 Sept. 2. I rode with . . . to Marblehead (Windham) a pigeoning; we got near ten dozen."

"1759 Sept. 1. Abundance of pigeons."

In 1741 Oldmixon in his 'The British Empire in America,' etc. (2nd edition, Vol. I, London, 1741, p. 186) merely states that "Vast Flights of Pigeons come and go at certain Seasons of the Year." But he is followed in 1755 by Douglass who gives a more detailed account.<sup>4</sup> "The common food is mostly already mentioned, to these we may add . . . wild (g) pigeons, . . .". In the footnote (g) he adds: "*Palumbus migratorius* Catesby, *Palumbus torquatus* Aldrovand. The wild pigeon, pigeon of passage, or ring

<sup>1</sup> Hubbard, William. *General History of New England*, 1680. Mass. Hist. Soc. Coll., Second Series, Vol. V, 1817, p. 25.

<sup>2</sup> Mass. Hist. Soc. Coll., Fifth Series, Vol. VI, p. 206.

<sup>3</sup> Smith, Rev. Thomas, and Deane, Rev. Samuel. *Journals of the. By Wm. Willis*, Portland, Me., 1849, pp. 266, 269, 114, 149, 273.

<sup>4</sup> Douglass, William. *A Summary, Historical and Political, of the First Planting, Progressive Improvements, and Present State of the British Settlements in North-America.* 2 vols., Boston, 1755. Vol. I, pp. 125, 126; Vol. II, pp. 217, 218.

dove. These are plenty at certain seasons, all over America, and of great benefit in feeding the poor. The French call them *ramier*, the Dutch call them *ringle duif*, *wilde duif*, *boom duif*."

"Wild pigeons, *palumbus torquatus migratorius*, see Vol. 1, p. 126, in their passage northward, begin to appear in New-England end of February and beginning of March, but not in large numbers, because they travel more inland for the benefit of last autumn berries of several sorts in the wilderness; they return in their passage southward, in larger quantities, end of August; and some years since have been sold at 4d. currency per dozen; they at that season keep towards the plantations for the benefit of their harvest. They are of great advantage in their seasons towards victualling our plantations; the country people feed some of them (they are caught alive in nets or snares) for sometime with Indian corn, and brought to market, and are good delicate eating; cuming seed or its oil, are found by experience the best lure to induce the pigeons to their nets. The spring flights 1751 were very large, like thunder shower clouds, but soon over."

In 1770, J. H. Wynne, in his 'General History of the British Empire in America' (2 vols., London: Vol. I, p. 41), says: "New England produces a great variety of fowls; such as . . . pigeons . . ." Among the feathered tribe of Connecticut Peters, in 1782, notes<sup>1</sup> "innumerable flocks of pigeons, which fly south in autumn;"

In 'The History of New Hampshire' (Boston, 1792), the famous historian Jeremy Belknap (Vol. III, pp. 171, 172) speaks of the "Wild Pigeon, *Columba migratoria*." "Wild pigeons come in the spring, from the southward, in great flocks, and breed in our woods, during the summer months. They choose the thickest parts of the forest, for the situation of their nests . . . In the journal of *Richard Hazen*, who surveyed the Province line, in 1741, there is this remark; 'for three miles together, the pigeons nests were so thick, that five hundred might have been told on the beech trees at one time; and could they have been counted on the hemlocks, as well, I doubt not but five thousand, at one turn around.' This was on the western side of the Connecticut river, and eastward of

<sup>1</sup> Peters, Rev. Samuel. *A General History of Connecticut.* 2nd edition, London, 1782, p. 255.

Deerfield river. Since the clearing of the woods, the number of pigeons is diminished."

Shortly afterwards (1794) Williams gives a very good statement of this species. He begins thus:<sup>1</sup>

"Wild Pigeon, *Columba migratoria* Time of appearance, March 20. Departure, Oct. 10.

"In the Wild Pigeon, the multiplying power of nature acts with great force and vigour. The male and female always pair: They sit alternately upon the eggs, and generally hatch but two at a time; but this is repeated several times in a season. The accounts which are given of the number of pigeons in the uncultivated parts of the country, will appear almost incredible to those who have never seen their nests. The surveyor, *Richard Hazen*, . . . [then follows Hazen's account]. The remarks of the first settlers of Vermont, fully confirm this account [Hazen's]. The following relation was given me, by one of the earliest settlers at Clarendon: 'The number of pigeons was immense. Twenty five nests were frequently to be found on one beech tree. The earth was covered with these trees, and with hemlocks, thus loaded with the nests of pigeons. For an hundred acres together, the ground was covered with their dung, to the depth of two inches. Their noise in the evening was extremely troublesome, and so great that the traveller could not get any sleep, where their nests were thick. About an hour after sunrise, they rose in such numbers as to darken the air. When the young pigeons were grown to a considerable bigness, before they could readily fly, it was common for the settlers to cut down the trees, and gather a horse load in a few minutes.' The settlement of the country has since set bounds to this luxuriancy of animal life; diminished the number of these birds; and drove them further to the northward."

In the course of a missionary tour in Maine Rev. Paul Coffin (1796) twice dined on pigeons,—August 13 at Duck trap, Me., and again August 16, at Crawford Pond. The same day at Union, Me.,<sup>2</sup> "[his host] took yesterday morning twenty-four dozen pigeons in a net at once; and this morning seventeen dozen . . . .

<sup>1</sup> Williams, Samuel. *The Natural and Civil History of Vermont.* Walpole, N. H., pp. 112-114.

<sup>2</sup> Me. Hist. Soc. Coll., First Series, Vol. IV, pp. 325, 328, 362.

Thirty-two dozen pigeons were taken at Sunnebeck [Pond, Barretts-town] at one spring of the net." In 1798, August 30, at Livermore, Me., "[his host] had just sprung his net on six dozen pigeons and took them all. To take a whole flock is a common thing with him."

In 1804 "pigeons" were mentioned as among the feathered kind in the Stockbridge Indian Country.<sup>1</sup> In 1815, in Carver, Mass.,<sup>2</sup> "Wood pigeons . . . are Common," as were they in Rochester, Mass., the same year. In the latter place, the writer says,<sup>3</sup> "Wild pigeons annually seek these woods and are very common in this town in August." In a footnote he adds: "Some of the peculiarities of this bird, it is said, are to visit marshes for mud, very early in the morning. They fly, it is computed, at the rate of a mile a minute, leaving the sea coast, by 8 or 9 o'clock A. M. going with this rapidity, occasionally resting in intervening forests far into the interior of the country. This habit is well known about Medford, where they are caught on the marshes by live pigeon decoys."

In the first volume of Timothy Dwight's 'Travels,' etc. (New Haven, 1821, 1822, p. 55), it is said: "Pigeons are (considered amongst) the Land birds principally coveted at the tables of luxury." Shortly after (1824) Zadock Thompson, so well known to zoölogists, barely mentions (p. 18) the "pigeon" as a "bird of passage" in his 'A Gazetteer of the State of Vermont,' but in 1842 he gives it more attention:<sup>4</sup> "The American Wild Pigeon is met with in greater or less numbers throughout the whole region from Mexico to Hudson's Bay. These birds are remarkably gregarious in their habits, almost always flying, roosting and breeding in large flocks. When the country was new there were many of their roosts and breeding places in this state." (Then follow Hazen's and Williams's accounts.)

Finally, in 1846, Beckley gives us the following:<sup>5</sup> "In the early settlement of the state, *wild pigeons* were wonderfully plenty.

<sup>1</sup> Mass. Hist. Soc. Coll., First Series, Vol. IX, p. 100.

<sup>2</sup> Mass. Hist. Soc. Coll., Second Series, Vol. IV, 1816, p. 275.

<sup>3</sup> Mass. Hist. Soc. Coll., Second Series, Vol. IV, 1816, p. 256.

<sup>4</sup> Thompson, Zadock. *History of Vermont, Natural, Civil and Statistical.* Burlington, Vt., 1842, Part I, p. 100.

<sup>5</sup> Beckley, Rev. Hosea. *The History of Vermont.* Brattleboro, 1846, pp. 304, 305.

So few are now found in the forests and on the mountains, that the account given by the first settlers of their numbers and multiplication seems almost incredible . . . The progress of civilization and refinement; and the clearing of the hills and vallies have much lessened the number of these birds, or driven them to other regions."

*New York.*

In the seventeenth century the early writers quite frequently remarked the abundance of the pigeons in the New Netherlands, and we have in this century alone nine or ten such records. First of all comes Wassenaers's observation that<sup>1</sup> "Pigeons fly wild, they are chased by the foxes like fowls." In 1625 John de Laet says<sup>2</sup> that when Hudson was near the present city of Hudson "two men were also despatched at once with bows and arrows in quest of game, who soon after brought in a pair of pigeons which they had shot."

In his 'Voyages from Holland to America,' 1632-1644, DeVries mentions pigeons in three different instances. In one case he remarks,<sup>3</sup> "There are . . . pigeons which fly together in thousands, and our people sometimes shoot thirty, forty, and fifty of them at a shot." In another place he speaks of them as follows: "Pigeons, at the time of year when they migrate, are so numerous, that the light can hardly be discerned where they fly . . . I have also seen, at different times, thirty to thirty-four pigeons killed at one shot, but they are not larger than turtle-doves, and their bodies are exactly like those of the turtle-doves in Fatherland, except they have longer tails."

In 1644 Megalopensis practically reiterates the same observations.<sup>4</sup> "In the forests here there are also many . . . pigeons that fly in flocks of thousands, and sometimes 10, 20, 30, and even 40 and 50 are killed at one shot." In his second voyage into

<sup>1</sup> Wassenaers, *Historie Van Europa.* Amsterdam, 1621-1632. *Documentary History of New York*, Vol. III, Albany, 1850, p. 3.

<sup>2</sup> Laet, John de. *The New World, or A Description of the West Indies.* Leyden, 1625. *N. Y. Hist. Soc. Coll.*, Vol. I, 1841, p. 300.

<sup>3</sup> DeVries, D. P. *N. Y. Hist. Soc. Coll.*, New Series, Vol. III, 1857, pp. 58, 90, 110.

<sup>4</sup> Megalopensis, Johannes Junior. *A Short Sketch of the Mohawk Indians in New Netherland*, 1644. *N. Y. Hist. Soc. Coll.*, N. S., Vol. IV, 1857, p. 150.

the upper country of the Iroquois (Onondaga mission) Radisson found<sup>1</sup> "The ringdoves in such a number that in a nett 15 or 1600 att once might be taken."

In 'The Representation of New Netherland,' etc., Adrian van der Donck enumerates<sup>2</sup> "multitudes of pigeons resembling coal-pigeons, but a little smaller," and in 'A Description of the New Netherland' (2nd edit., Amsterdam, 1656), he speaks of this species at some length.<sup>3</sup> "The pigeons, which resemble coal pigeons, are astonishingly plenty. Those are most numerous in the spring and fall of the year, when they are seen in such numbers in flocks, that they resemble the clouds in the heavens, and obstruct the rays of the sun. Many of these birds are shot in the spring and fall, on the wing, and from the dry trees whereon they prefer to alight, and will sit in great numbers to see around them, spring and fall, on the wing, and from the dry trees whereon they prefer to alight, and will sit in great numbers to see around them, from which they are easily shot. Many are also shot on the ground, and it is not uncommon to kill twenty-five or more at a time. The Indians, when they find the breeding places of the pigeons, (at which they assemble in numberless thousands,) frequently remove to those places with their wives and children, to the number of two or three hundred in a company, where they live a month or more on the young pigeons, which they take, after pushing them from their nests with poles and sticks."

In 1670 Daniel Denton in 'A Brief Description of New York,' etc., says:<sup>4</sup> "Wild Fowl there is great store of, as Turkies, . . . Pidgeons, and divers others," and in another note thinks of New York as a place "where besides the pleasure in Hunting, he may furnish his house with excellent fat Venison, . . . Pidgeons and the like." The following year Montanus remarks:<sup>5</sup> "The pigeons fly in such flocks that the Indians designedly remove to their breeding places where the young birds, pushed by hundreds from their nests, serve for food during a long month for the whole family."

<sup>1</sup> Radisson, Peter Esprit. *Voyages of, etc.*, 1652-1684. Prince Soc. Publications, Vol. XVI, 1885, p. 118.

<sup>2</sup> N. Y. Hist. Soc. Coll., N. S., Vol. II, 1849, p. 265.

<sup>3</sup> N. Y. Hist. Soc. Coll., N. S., Vol. I, 1841, p. 173.

<sup>4</sup> Bull. Hist. Soc. Penn., Vol. I, 1845-47, pp. 6, 15.

<sup>5</sup> Montanus. *Description of New Netherland*. Amsterdam, 1671. Doc. Hist. New York (octavo ed.), Vol. IV, 1851, pp. 118, 123.

In 'New York in 1692, [a] Letter from Chas. Lodwick.... Dated May 20, 1692,' says<sup>1</sup> "wild pigeons are here in abundance; they breed up ye country some hundreds of miles of from us Northward, and come flying in great quantity in ye Spring, and pass to ye Southward, and return to us about ye time our corn is ripe, and settle in ye Trees, and on ye corn Lands in great numbers." In 1699, we close the century with Viele's observation made at Onondaga. On April 30, he says,<sup>2</sup> "We sent for the Sachims of Cayouge....; Not far from Cayouge the Messenger met a Cayouge Indian who told him that all their Indians young and old, were in the woods to fetch young pigeons."

In June, 1749, Peter Kalm when travelling above Albany,<sup>3</sup> "saw immense numbers of those wild pigeons flying in the woods, which sometimes come in incredible flocks to the southern *English* colonies, most of the inhabitants not knowing where they come from. They have their nests in the trees here; and almost all the night make a great noise and cooing in the trees, where they roost. The *Frenchmen* shot a great number of them, and gave us some, in which we found a great quantity of the seeds of the elm, which evidently demonstrated the care of Providence in supplying them with food; for in *May* the seeds of the red maple, which abounds here, are ripe, and drop from the trees, and are eaten by the pigeons during that time; afterwards, the seeds of the elm ripen, which then become their food, till the other seeds ripen for them. Their flesh is the most palatable of any bird's flesh I ever tasted."

"Almost every night we heard some trees crack and fall, whilst we lay here in the wood, though the air is so calm that not a leaf stirred. The reason of this breaking I am totally unacquainted with.... It may be, that the above-mentioned wild pigeons settle in such quantities on one tree as to weigh it down."

In a 'Journey to Oghquaga' (Broome Co.), Rev. Gideon Hawley, 1753, remarks:<sup>4</sup> "It may not be impertinent to observe, that in this wilderness, we neither hear nor see any birds of musick....

<sup>1</sup> N. Y. Hist. Soc. Coll., N. S., Vol. II, 1849, p. 246.

<sup>2</sup> Journal of Arnout Cornelisse Viele's Negotiations at Onondaga. Documents Relating to the Colonial History of New York. Vol. IV, pp. 561, 563.

<sup>3</sup> Travels into North America, etc. Transl. by John R. Forster. Vol. II, 1771, pp. 311, 312.

<sup>4</sup> Doc. Hist. N. Y., Vol. III, 1850, p. 1042 (Svo edit.), or Mass. Hist. Soc. Coll., Vol. IV, 1795, pp. 61, 62.

There is one wood bird, not often seen, but heard without any melody in his note, in every part of the wilderness, wherever I have been. In some parts of this extensive country the wild pigeons breed in numbers almost infinite. I once passed an extensive valley where they had nested; and for six or eight miles, where the trees were near and thick, every tree had a number of nests upon it; and some, not less than fifteen or twenty upon them: But as soon as their young are able, they take wing and are seen there no more." In 'A Journal of the New Hampshire Scout,'<sup>1</sup> Sir Wm. Johnson's trip from Lake George to Crown Point, states that September 18, 1755, "Their People (French and Indians), some few [who] were at work at the Intrenchments seemed unconcerned — hunting Pidgeons etc. all around in the Wood."

In 1777 (June 23), when at camp at River Bouquet near Lake Champlain, Anbury says:<sup>2</sup> "There are at this season of the year prodigious flights of pigeons crossing the lake, of a most beautiful plumage, and in astonishing quantities. These are most excellent eating, and that you may form some idea as to their number, at one of our encampments, the men for one day wholly subsisted on them; fatigued with their flight in crossing the lake, they alight upon the first branch they can reach to, many are so weary as to drop in the water, and are easily caught; those that alight upon a bough being unable to fly again, the soldiers knock down with long poles.

"During the flights of these pigeons, which cross this lake into Canada, and are continually flying about in large flocks, the Canadians find great amusement in shooting them, which they do after a very singular manner: in the daytime they go into the woods, and make ladders by the side of the tall pines, which the pigeons roost on, and when it is dark, they creep softly under and fire up this ladder, killing them in great abundance; they then strike a light, and firing a knot of the pitch pine, pick up those they have killed, and the wounded ones that are unable to fly. During the flights of these pigeons, which generally last three weeks or a month, the lower sort of Canadians mostly subsist on them."

<sup>1</sup> Doc. Hist. of New York, Vol. IV, 1851, p. 259. (8vo edit.)

<sup>2</sup> Anbury Thomas. Travels through the Interior Parts of America, in a Series of Letters. 2 vols., London, Vol. I, 1789, pp. 275, 276.

In 1788, George Henry Loskiel gives an interesting account of this species (equally applicable to Pennsylvania).<sup>1</sup> "The *Wild Pigeon* (*columba migratoria*) is of an ash grey color. The cock is distinguished by a red breast. In spring they take their passage to the north, and in autumn return to the south. In some years they flock together in such numbers, that the air is darkened by their flight. Wherever they alight, they make as much havock among the trees and garden-fruits as the locusts. The noise they make is so intolerable, that it is difficult for people near them to hear, or understand each other. In the year 1778 they appeared in such great numbers, that the ground under their resting-places was covered with their dung above a foot high, during one night. The Indians went out, killed them with sticks, and came home loaded. They delight in shooting these wild pigeons, and sometimes kill thirty at a shot. At night, a party of Indians frequently sally out with torches made of straw or wood, and when they get among the birds, light them. The pigeons being dazzled by the sudden glare, are easily knocked off the branches with sticks. Such a party once brought home above eighteen hundred of these birds, which they killed in one night in this manner. Their flesh has a good taste, and is eaten by the Indians either fresh, smoked, or dried. When the Iroquois perceive that the young pigeons are nearly fledged, they cut down the trees with the nests, and sometimes get two hundred young from one tree." Of one of its foods he says: "Virginian Poke (*phytolacca decandra*) is . . . called by some pigeon-berry, the pigeons being extremely fond of them."

In 1803, Rev. Clark Brown, in a topographical description of Catskill, says:<sup>2</sup> "These and the wild pigeons are the chief fowls, which are killed for use." The next year (1804) Robert Munro, in his 'Description of Genesee Country,' states:<sup>3</sup> "Large numbers of pigeons frequent the country in spring and fall, of which a great many are caught in nets and shooting, and beds are sometimes made of their feathers."

<sup>1</sup> Loskiel, George Henry. History of the Mission of the United Brethren among the Indians in North America. In three parts. Transl. by C. I. La Trobe. London, 1794, pp. 92, 93, 116 (orig. edit. 1788).

<sup>2</sup> Mass. Hist. Soc. Coll., Vol. IX, 1804, p. 118.

<sup>3</sup> Doc. Hist. of New York, Vol. II, 1849, p. 1175. (8vo edit.)

On March 25, 1830, at Albany,<sup>1</sup> "Pigeons had begun their migration, and thousands of them were overwhelmed in the storm; and they were taken in great abundance in the valley of the Butter-milk creek."

(To be concluded.)

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#### GENERAL NOTES.

**A Case of the Migration and Return of the European Teal in Massachusetts.**— The following facts must be taken only for what they are worth, for unfortunately the data are incomplete. There is, however, no doubt in my mind that we are dealing with a case of the migration, and return to the place of birth, of a non-indigenous bird.

In the spring of 1909, Mr. Thomas Johnston came over from England to enter my employment, and brought with him five pairs of live European Teal (*Nettion crecca*), together with some other water-fowl. These birds were bred in England on the estate of Sir Richard Graham in Cumberland County, where many interesting experiments in propagating water-fowl are in progress.

The teal suffered many vicissitudes of fortune, from various causes, and were reduced in 1910 to two pairs. These two pairs were kept with other water-fowl in a small, enclosed, artificial pond, in the orchard at Wenham, situated about 75 yards from the farm-house, 40 yards from the road, and a third of a mile from Wenham Lake. No other varieties of teal were kept.

About the middle of June, 1910, two downy young were led out into the pond by one of the female teal. These thrived amazingly and obtained their wings so soon that the first attempt at their capture, which was put off for fear of disturbing other fowl, resulted in finding that the youngsters were too spry for the net. They turned out to be both females, and were not disturbed again. They traded between the pond and Wenham Lake all the summer and fall, spending the greater part of their time in the enclosed pond and feeding on a mud flat on the eastern shore of the lake. They were perfectly tame while in the pond, and were only flushed with difficulty, but outside its boundaries they were as wild as any teal.

On December 6, the pond, and also the lake, froze. The other fowl were placed in winter quarters the day before the freeze, and our teal vanished, as we thought for good.

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<sup>1</sup> Munsell, Joel. The Annals of Albany. Albany, 1858, Vol. IX, p. 206.

On the morning of April 19, 1911, a single female teal was found in the pond, none of the other fowl having yet been released from winter quarters. This teal was perfectly at home and absolutely tame. She allowed close approach, and when actually flushed made the same characteristic flight to the lake, keeping only a few yards off the ground. In a short time she returned. At the present date, May 17, she is still with us.

All that can be said is that this bird is a female green-winged teal, further identification being impossible as the plumage of the females of the American and European species is similar. I believe however that this returned bird is one of those that hatched in our pond, for the following reasons.

First, its actions are exactly similar to the birds of the previous summer, and very different from those which a strange teal would exhibit.

Second, it returned to a spot that no wild water-fowl have ever used.

Third, it shows no disposition to migrate north.

Fourth, the occurrence of Green-winged Teal in this locality in the spring is so rare that I have never met with one.

It seems also far more likely that our bird migrated to at least a much warmer latitude, for it could not possibly have wintered here, especially during such a severe winter as that of 1910-11. It returned nearly four weeks after the ice was out of the ponds and rivers.

Such cases, granted we are not mistaken, and also those where birds have successfully returned to their nests, when transported far beyond their natural range (see Watson, Carnegie Institute Publication No. 103, p. 227) force one to assume a directive sense in birds far beyond anything at present conceivable.—J. C. PHILLIPS, Wenham, Mass.

**Records of *Butorides brunneascens* in Cuba.**—I beg to report the capture on January 19, 1911, of a specimen of *Ardea brunneascens* Gundl., in a small lagoon on the San Carlos Sugar Plantation at Guantanamo, Cuba. The specimen is an adult female in fine plumage and was the only heron about the lagoon at the time.

I believe this is the first record for eastern Cuba. Dr. Gundlach in his work on Cuban birds states having taken it once in western Cuba on the Siguagua Creek between Moron and Jucaro, when he found a family of them, but mentions no date. He also says that he heard of another specimen being taken near Havana which was sold to a taxidermist of that city. I am also informed that Prof. Bangs records having taken two specimens in the Isle of Pines, so mine is the fifth Cuban record for the species.—CHARLES T. RAMSDEN, Guantanamo, Cuba.

**“Nuptial Plumes” of the American Bittern.**—The writer read with peculiar interest the account by Mr. Brewster<sup>1</sup> of the “nuptial plumes” worn by certain bitterns, as he had himself witnessed the display

<sup>1</sup> Auk, XXVIII, 1911, pp. 90-100.

described. On May 18, 1907, while with a class of students in bird study from the University of Chicago, an American Bittern was observed not seventy-five yards distant, in a marsh at Millers, Indiana. The white nuptial plumes were displayed in most conspicuous fashion so that the attention of all members of the party was directed to them at once.—R. M. STRONG, *University of Chicago, Chicago, Ill.*

**The Sandhill Crane (*Grus mexicana*) in Ohio.**—The Carnegie Museum has recently acquired a fine specimen of the Sandhill Crane, shot on April 11, 1911, in the southwest corner of Huron County, near Plymouth, Ohio, by Mr. F. B. Lofland. It appears that Mr. Lofland first saw the bird a week or ten days previously and wounded it at that time, but did not succeed in capturing it. Upon the occasion of his next visit he again found the bird, which was unable to fly, and showed fight upon being approached, so that he was obliged to shoot it. The occurrence of this species in Ohio seems worthy of record, as it is certainly one of the rarest birds of the State, although Mr. Lofland thinks that he has seen other individuals at this same locality — an extensive swamp.—W. E. CLYDE TODD, *Carnegie Museum, Pittsburgh, Pa.*

**A Woodcock in New York City.**—On March 10, Mr. Louis H. Schortemeier brought into the office of the National Association of Audubon Societies a Woodcock, *Philohela minor*, which he had picked up in Maiden Lane, New York City, that morning (March 25, 1911). The bird appeared to be in good condition, save that it was probably weak from hunger. It was sent to the New York Zoological Park. Mr. Crandall informs me that the bird refused all food and was kept alive for about a week by stuffing it with worms and maggots, when it died. This has been the previous experience at the Park with these birds and is in line with one experience that I had. Although Mr. Crandall even secured earth worms for this bird, and buried them in soft earth, the bird refused to eat voluntarily.—B. S. BOWDISH, *Demarest, N. J.*

**A Golden Plover in Massachusetts in April.**—On April 8, 1911, while at Plum Island, Mass., with Dr. J. B. Brainerd, Barron Brainerd, and Richard M. Marble, I shot a Golden Plover (*Charadrius dominicus*). The bird proved to be a male with a single black feather near the center of his breast. He is now in my collection.

The bird had not been seen by members of the Plum Island life-saving station near which he was shot, neither were there any traces of old wounds. His body was entirely free from fat. Whether he was a straggling migrant or a bird which had been forced to winter is a question open to discussion.—JAMES L. PETERS, *Harvard, Mass.*

**The Troupial at Santa Barbara, Cal.**<sup>1</sup>—Yesterday (April 30, 1911)

<sup>1</sup> Extracts from two letters written to the Editor, with permission to publish, dated respectively May 1 and May 4, 1911.—ED.

I think I made my best take in many a long day, in the shape of a magnificent male Troupial (*Icterus icterus*). The entire plumage is perfection, not a feather in tail or wings being frayed in the slightest, while the feet are in perfect shape. For these reasons I do not think it can possibly be a cage bird. It was in company with a large flock of Western Tanagers (*Piranga ludoviciana*) and Bullock's Orioles (*Icterus bullocki*) that were migrating through the upper part of Mission Cañon, one of the wildest localities near Santa Barbara. It was in good condition and seemed perfectly at home, the stomach being crammed with small green canker worms.

The plot in the Troupial situation is thickening. Yesterday (May 3) I remembered that a friend asked me some three weeks ago to tell him what some birds were that he described as being "about the size of a Meadowlark, but with a long black tail, black head, and a stripe around its back like a Holstein cow." I could not imagine what they could be and told him he must have been mistaken, although he is a good observer and has painted a number of birds very creditably. Yesterday, as I say, I remembered it and asked him to look over my birds and see if he could place it. He picked out the Troupial without hesitation, saying he would have known it anywhere by the stripe of yellow over the upper back, which, as he said, reminded him of a Holstein cow.

It would have been about the first week in April that he saw them, and three of them were together. This looks a good deal as if we had a small flight of *Icterus icterus* here at Santa Barbara this spring and, to my mind, quite eliminates the possibility of a cage bird theory.—J. H. BOWLES, *Santa Barbara, Cal.*

**The Western Evening Grosbeak in Denver, Colorado.**—The undersigned has to report the occurrence of two individuals of this species (*Hesperiphona vespertina*) in Cheeseman Park, Denver, Colo., on April 12, 1911, one having been secured, which proved to be a male. Three others were seen in the same locality on April 20, 1911. This Park is on the eastern edge of the city, about two and one half miles from its center. Both these dates are comparatively late ones for this species so far from the higher mountain regions, though Thorne recorded it as having occurred at Fort Lyons, Colorado, on May 11, which is nearly one hundred miles eastward on the Plains.—W. H. BERGTOLD, *Denver, Colo.*

**An Unusual Occurrence of the Pine Grosbeak in Rhode Island.**—Visitations of the Pine Grosbeak (*Pinicola enucleator leucura*) into southern New England and the Middle Atlantic States have been probably more widespread during the past winter than at any other time since the severely cold season of 1903-04. In view of this fact the remarkably late northward flight of a flock of Grosbeaks observed at Providence, R. I., may be of special interest. Early in the morning of April 28, 1911, I saw fourteen Pine Grosbeaks on Neutaconkanut Hill, Providence. Several were sitting

in a large oak tree over a swamp, and others on the bare, highest branches of saplings nearby. The birds allowed me to approach very near, and, while I looked on, four of them flew to the wet, springy ground below in order to drink. This was within thirty feet of where I stood. Six or seven of the members of the flock were males in the red plumage.

So far as records inform, April 28 is an unusual if not an unprecedented date for Pine Grosbeaks in this latitude. In southern New England they have generally been observed to linger no later than March; and April 10 is given as a normal date of last occurrence in Manitoba.—ROBERT CUSHMAN MURPHY, *Brown University, Providence, R. I.*

**Orange-crowned Warbler at Youngstown, Ohio.**—In 'The Auk' for April, 1911, p. 268, Richard C. Harlow, of State College, Pennsylvania, mentions the occurrence there of the Orange-crowned Warbler on May 16, 1909. Upon reading this, I referred to my records and found that I had observed an Orange-crowned Warbler, May 15, 1909, at Youngstown, and that this is my only record for this species. I observed it in the early morning in bushes along a small stream. It finally moved along to a brush pile on the bank of the stream where I watched it for perhaps an hour, at times being within 10 feet of it, and identified it to my satisfaction.

Referring to my records again, I find that I listed 20 different species of Warblers on the same day (May 15), 4 of them first arrivals, and some, classed as common, for the first time that season. This indicates that we had here a migration of warblers at that time.

While I was certain of my identification of the Orange-crowned at that time, Mr. Harlow's note, in my opinion, helps to confirm it.—GEO. F. FORDYCE, *Youngstown, Ohio.*

**Brewster's Warbler.**—In 'The Auk' for October, 1910 (XXVII, pp. 443-447), there appeared an article by Julia Wingate Sherman on Brewster's Warbler. As there are numerous inaccuracies in the account it seems best to point them out and correct them as far as possible.

The history of the Brewster's Warbler about Boston dates from 1907. In that year a male was seen in the Arnold Arboretum by Miss Helen Granger on May 19 (Granger, Auk, XXIV, 1907, p. 343), and was subsequently found breeding (Faxon, Auk, XXIV, 1907, p. 444) with a female Goldenwing. Mrs. Sherman, referring to this pair, writes: "Mr. [C. J.] Maynard sent me a water-color drawing of the female and young, which he made at the time. This female showed an extensive, nearly black throat patch, also a large yellow patch in the wing."

The next year the male Brewster's was seen on May 13 (Peters, Auk, XXV, p. 320), near the same place as the year before. On June 8 I found the nest within a few yards of the spot where the pair was located in 1907. At the time the nest contained five naked young. About the same time the nest was discovered by Mr. George Nelson of the Agassiz Museum and was later taken by him for the Museum. There can be no doubt that

the owners of the nest were a male *Helminthophila leucobronchialis* and a female *H. chrysoptera*, as both birds were seen about the nest. About five days after I found the nest the young disappeared, just how will never be known.

A few days after the disappearance of the young birds a nest was found across the road and was believed by Mrs. Sherman and others who did not know of the first to be that of *leucobronchialis*. So far as I am aware the determination of the ownership of the nest was based entirely upon the identification of the female, which was described in 'The Auk' by Mrs. Sherman as having "a dark dusky throat-patch, not clearly defined at its base, but blended into the pale gray of the upper breast.... The black line through the eye was broader and extended back farther than did that on the Brewster of the preceding year. She differed also in showing two yellow wing-bands." This description applies perfectly to the female of *chrysoptera* and as there was a male of this species singing not far from the nest in question it is not at all unlikely that he was the owner and not the *leucobronchialis*, as one might be led to believe.

In 1909 and 1910 the straight male *chrysoptera* was the only bird to be seen; in the Arboretum no female was seen or nest found in either year.

Mrs. Sherman describes (*l. c.*, pp. 444, 445) a pair of Goldenwings which bred in Roslindale in 1910. The male was a typical *chrysoptera*; the female, which had been identified as *leucobronchialis*, had much the same plumage as the one she had just described (see above), but differed in having "the dusky throat patch lighter in color. It bore the same character in being darker towards its center and directly under the bill. The one in 1908 had a nearly black throat patch, mottled slightly in appearance. The black line through the eye was narrower and paled on a pale gray cheek. The white line above the eye was uniform in width.... The white line below the eye was shorter. The whole tone of the back was more olivaceous. Two bright yellow wing-bars divided by an olive or dark band on the wing. The entire underparts were washed with yellow which showed quite bright on the middle of the breast in a good light. The crown was bright dandelion yellow running into bronzy yellow on the back of the head."

This description seems to be a rather good one of a female *Helminthophila chrysoptera* in very high plumage.

It has always been believed that the females in the Arboretum in 1907 and 1908 were *chrysoptera*, and I see no reason why either of these birds or the one in Roslindale should ever be regarded as anything else.—JAMES L. PETERS, *Jamaica Plain, Mass.*

**Black-throated Blue Warbler (*Dendroica caerulescens caerulescens*)**  
**Nesting in Sterling, Massachusetts.**—I have been collecting about Lancaster, Mass., since 1897 and I have never found but one Black-throated Blue Warbler's nest until today.

My friend Mr. Herbert Parker told me he had found what he was sure was a Black-throated Blue's nest, in Sterling, which is the next town to

Lancaster, about due west. I went with him the next day (May 28, 1911) and found the nest with the female on it. She glided off and I shot her, to be absolutely sure about the identity. The nest was placed in a laurel bush (*Kalmia latifolia*) about eleven inches from the ground and contained four fresh eggs. It was a typical nest of this species, lined with the dark fibres that are usually used.

Later in the day we found another nest, in a laurel bush, about two feet from the ground. It contained four eggs slightly incubated. As the female was very tame and gave us every opportunity to identify her, I did n't shoot her, as it seemed unnecessary; especially as I had collected the parent bird with the first set.

I located another pair in this same wood, but failed to find their nest.—  
JOHN E. THAYER, Lancaster, Mass.

**Notes on a Massachusetts Mockingbird.**—The notes on the Mockingbird, published in a recent issue of 'The Auk,' recall to mind some pleasant and interesting observations I made on this species in eastern Massachusetts a few years since. In looking over my notebooks I find under date of June 5, 1908: "An unusual bird visitor seen today. While working in the field my attention was attracted by the (supposed) note of the Crested Flycatcher. I was somewhat surprised to hear it, as this flycatcher is found here only in a few restricted localities. This being outside of the localities where usually found, I hastened to investigate and found that these notes, and a varied collection of others also, came from a Mockingbird. By good fortune he proved to be very approachable, affording a fine chance to see and watch him.

"He was for the most part singing all the time; a pause of a few minutes now and then, during which time he fed more persistently than when singing, although his time when in song, was not entirely devoted to that, but he was frequently changing his perch in order to catch some insect, but making no noticeable pause in song. Much the same style and manner as the Red-eyed Vireo in this respect. I do not know what the powers of mimicry may be for the average mocker but I should think that this one was more than ordinarily skilled in that difficult art.

"A multitude of call-notes and songs of the commoner birds, and some that I hear but infrequently, he ran over apparently as easily as the pianist plays the scale, and with perfect imitation. In many cases not even an acute and practised ear could detect a variation from the genuine. He seemed to be especially well skilled in the performance of the song or calls of the Crested Flycatcher, giving that peculiar inflection one notes in the whistle of this particularly interesting species. Again, without any apparent pause, he would be "whipping-poor-will" with spiteful accent or trilling the amicable "cheer-up" of the robin. The squall of the Blue Jay and also the Jay's more musical bell like note, were rendered with correct expression. The mew of the Catbird and the clicker of the Kingbird, the laughing call of the Flicker, and the Downy Woodpecker's metallic

note, all these came in easier and quicker time than I can write. And so on throughout a long list of some twenty to thirty species

"To me, unfamiliar with the mocker before, this was a rare treat. What his own individual song might have been I can only guess, but perhaps a rolling, lyrical song like that of the Brown Thrasher, which came in occasionally as an interlude in his long roll of imitations. No doubt, also, there may have been notes of several southern birds that we here in the north would not recognize, because of unfamiliarity with them; for his song was ever full and varied, shifting from one to another without any warning or apparent aim."

The following list, are species certainly recognized in his imitations:

1. Blue Jay (two notes).
2. Whip-poor-will.
3. Kingbird.
4. Crested Flycatcher.
5. Chebec.
6. Phoebe.
7. Wood Pewee.
8. Red-winged Blackbird.
9. Meadowlark (*Zee-ee-p* note).
10. Baltimore Oriole.
11. Downy Woodpecker.
12. Flicker.
13. English Sparrow.
14. Vesper Sparrow.
15. Song Sparrow.
16. Indigo Bird.
17. White-bellied Swallow.
18. Scarlet Tanager.
19. Red-eyed Vireo.
20. Yellow-throated Vireo.
21. Summer Yellowbird.
22. Maryland Yellowthroat.
23. Chickadee.
24. White-breasted Nuthatch.
25. Catbird.
26. Brown Thrasher.
27. Wood Thrush.
28. Robin.
29. Bluebird.

Besides the above there may have been, as I have previously stated, two or three southern bird notes that I am unfamiliar with. The twenty-nine named were clearly enunciated and readily identified.

This bird remained in the locality for nearly a week and was enjoyed by several persons interested in bird study.—S. WALDO BAILEY, *Newburyport, Mass.*

## RECENT LITERATURE.

**Ridgway on New Forms of Picidae.**<sup>1</sup>—Mr. Ridgway here describes 11 new subspecies of American Woodpeckers and proposes a new genus, *Belanosphyrax*, for the *Melanerpes formicivorus* group. Most of the subspecies are tropical, but the following are North American: (1) *Colaptes auratus borealis*, the large form of the Canadian and Hudsonian zones, based wholly on size. (2) *Colaptes chrysoides mearnsi*, from "Arizona, extreme southeastern California and northern Lower California." *C. c. brunneascens* Anthony, omitted from the last A. O. U. Check-List, is also here reinstated. (3) *Centurus uropygialis brewsteri*, from southern Lower California. (4) *Phlaeotomus pileatus floridanus*, from peninsular Florida. This, with the recently described *P. p. picinus* Bangs,<sup>2</sup> here also recognized, gives four subspecies of *P. pileatus*, and adds two to the last A. O. U. Check-List. All are based mainly on differences in size, and on the fact that corresponding subspecies are recognized for the corresponding areas in the *Dryobates villosus* and *D. pubescens* groups.—J. A. A.

**Oberholser on the Flycatchers of the Genera Hypothymis and Cyanonympha.**<sup>3</sup>—The genus *Hypothymis* consists, as here recognized, of 4 species and 16 additional subspecies, of which 15 are subspecies of *H. azurea*, for the most part insular forms; 11 of the subspecies are here first distinguished; most of the others were originally described as species. The group ranges from southern India to the Philippines, Sumatra, Borneo, Celebes, and Java, including the numerous smaller outlying islands. The new genus *Cyanonympha* consists of *Hypothymis superciliaris* and its subspecies *samarensis*, from the southern Philippines. Keys are given to the species and subspecies, and tables of measurements of large series of specimens of many of the forms recognized. The monograph is based mainly on the collections made by Dr. W. L. Abbott, with other material in the U. S. National Museum, numbering altogether (including a few borrowed) 205 specimens.—J. A. A.

**Roberts's 'The Evening Grosbeak in Minnesota.'**—This paper<sup>4</sup> was "prepared in its present form for publication in a 'Report on the Birds of Minnesota' in course of preparation by the Minnesota Natural

<sup>1</sup> Diagnoses of Some New Forms of Picidae. By Robert Ridgway. Proc. Biol. Soc. Washington, Vol. XXIV, pp. 31-36, Feb. 24, 1911.

<sup>2</sup> Proc. New England Zoöl. Club, IV, p. 79, April 2, 1910.

<sup>3</sup> A Monograph of the Flycatcher Genera *Hypothymis* and *Cyanonympha*. By Harry C. Oberholser, Assistant Ornithologist, Department of Agriculture. Proc. U. S. National Museum, Vol. XXXIX, pp. 585-615. Feb. 28, 1911.

<sup>4</sup> The Evening Grosbeak in Minnesota. A. O. U. No. 514. *Hesperiphona vespertina vespertina* (W. Cooper). By Thomas H. Roberts. Bull. Minnesota Acad. of Science, Vol. IV, No. 3 (1910), pp. 406-414.

History Survey," where it will eventually appear in a probably much condensed form. It contains at present an annotated synonymy of Minnesota references, arranged chronologically, and a detailed description of the species, followed by an extended account of its manner of occurrence in Minnesota, with localities of occurrence, and migration dates for both fall and spring, running back to the earliest known record of its occurrence. Its habits during its stay in Minnesota, which is often prolonged till late in May, are described in detail, including its haunts, food, song, and general behavior. This is followed by transcripts from the original account of the species given by William Cooper in 1825, in the first volume of the 'Annals' of the Lyceum of Natural History of New York. Its beautiful plumage and pleasing song render it an exceptionally attractive species. Says the author: "A life time may be spent in close intimacy with birds and yet the clear whistle or a gleam of the unique tricolored vestments of the Evening Grosbeak, never fails to secure a pause in one's occupation and a moment passed in admiration and wonderment. Until the remarkable and previously unnoted advent of thousands of these birds into the whole northeastern portion of the United States in the winter of 1889-90 the Evening Grosbeak, except in a few favored localities, was a veritable will-o'-the-wisp, a sort of disembodied bird-spirit to most ornithologists."—

J. A. A.

**Beetham's 'Photography for Bird-Lovers.'**<sup>1</sup>—Mr. Beetham's fitness to prepare what may be called a practical manual of Bird-Photography has been shown in his 'The Home-Life of the Spoonbill,' etc., already noticed in these pages (*antea*, pp. 132, 133). The present work is divided into twelve chapters, the first of which is an introduction relating to the general subject, followed by chapters on apparatus, nest-photography, photographing young birds, photographing by the stalking method, by the concealment method, by concealment and artificial attraction, by rope-work on the cliff-face, photography of birds in flight and in captivity, and on bird-photography in color and in cinematography. The subject of apparatus is considered at considerable length, based on the author's ample experience, and will doubtless prove very helpful to beginners in bird-photography in securing a proper equipment. The author treats fully of the difficulties met with in nest-photography and the devices that may be used to secure successful results; also of stalking and hiding, and of methods of concealment, etc., with hints on focussing at nests, the difficulties met with in cliff work, and instructions for color photography and cinematography work. In short, the whole field is apparently well

<sup>1</sup> Photography | for | Bird-Lovers | A Practical Guide | By | Bentley Beetham, F. R. S. | Author of | "The Home-Life of the Spoonbill, the Stork, and Some Herons | With Photographic Plates | London | Witherby & Co., 326 High Holborn, W. C. | 1911 — Sq. demy 8vo, pp. vi + 126, with 16 full-page half-tone plates and several text illustrations. Price 5s. net.

covered in an exceedingly practical way. The half-tone illustrations are not only interesting and beautiful, but have in most instances a direct relation to the instructions given in the text.—J. A. A.

**Matthews's 'Birds of Australia.'**—Part 3<sup>1</sup> of this work, bearing the date April 29, 1911, concludes the account of the Pigeons, of which twelve species are here figured and described, and two additional subspecies are described. While similar in plan and execution with previous parts, the historical and biographical matter is usually restricted to a few quotations from previous writers, and thus much less extended than in Part 1, or than the prospectus might lead one to expect.—J. A. A.

**Menegaux on the Birds of Ecuador.**<sup>2</sup>—This report is based on a collection of 885 specimens collected by Dr. Rivet during five years of service as physician to the French Geodetic Survey, 1899–1906, in northern central Ecuador. After a short historical account of previous ornithological work in this region the author proceeds to give in systematic sequence a list of the 274 species obtained, exclusive of the Hummingbirds (33 species) previously reported upon by M. Simon (*cf. ante*, p. 133). The specimens obtained are enumerated, with their localities and more or less descriptive comment, under their respective species, with reference to previous records for the region, and a brief statement of the range of the species and a citation of the place of original description and type locality. The list adds a considerable number of species not previously recorded from the region.

The systematic list is followed by several pages on the climatic and topographic features of the region, with lists of species characteristic of the different climatic and faunal districts, and by a bibliography of about 50 titles. The four colored plates illustrate *Tinamus latifrons* Salvad., *Odontophorus melanotus* Gould, *Grallaria gigantea* Lawr., and *Philydor columbianus riveti* Meneg. & Hellm.—J. A. A.

**Hellmayr's 'The Birds of the Rio Madeira.'**<sup>3</sup>—The present paper of nearly 200 pages is presented "as a complete résumé of our present knowledge of the *Ornis* of the Madeira region," here restricted "to that portion of the stream from Borba upwards to the junction of the Beni and Guaporé Rivers." For this area 464 species and subspecies are here recorded.

<sup>1</sup> *Birds of Australia*, by Gregory M. Matthews. Part 3, April 29, 1911. Royal 4to, pp. 137–184, pl. xxxiv–xliv, colored. Witherby & Co., London.—For notice of previous parts see *antea*, pp. 135 and 289.

<sup>2</sup> *Étude des Oiseaux de l'Équateur rapportés par le Dr. Rivet. Mission du service géographique de l'Armée pour la mesure d'un Arc de Méridien équatorial en Amérique du Sud, 1899–1906, tome IX*, pp. B. 1–B. 128, pl. i–iv (colored).

<sup>3</sup> *The Birds of the Rio Madeira*. By C. E. Hellmayr. *Novitates Zoologicae*, Vol. XVII, pp. 257–428. December, 1910.

The basis of this report is a collection of 2000 specimens collected by Mr. Wilhelm Hoffmanns in 1906, 1907, and 1908, for the Tring Museum. In addition to this material the author has had access to the Natterer collection in the Vienna Museum, and to specimens in Count Berlepsch's collection. The collector, Mr. Hoffmanns, suffered much from malaria while forming this important collection, and unfortunately died from pneumonia soon after his return to his home in Germany.

The specimens are listed under their respective species, with the dates and localities of collection, while measurements are given of wing, tail and bill, and the collector's notes on the color of the iris, feet and bill from the freshly killed specimen. References are given to previous pertinent records, and there is much technical comment relating to the geographical ranges and affinities of the forms recorded, and on points of nomenclature, etc. The ranges of allied forms and their distinctive points are given in synoptical form for many groups of subspecies, this rendering the report of special convenience and value to future workers in South American ornithology. The critical notes and references are of special importance in connection with previous records. The first reference in the synonymies is to the place of first description, and includes the type locality, if definitely given originally or since assigned, and now assigned if not previously fixed. In short, the report is made up in the same careful and critical manner that has characterised the author's previous faunistic papers.

A geographical summary at the close of the account states that only species that have actually been taken in the Madeira district have been included. The avifauna is said to show a mixed character, with some 30 species peculiar to it, while not a few are found on one bank of the river that do not cross to the other.—J. A. A.

**'Feathers and Facts.'**—Under this title<sup>1</sup> The Royal Society of Great Britain for the Protection of Birds has issued a statement on the subject of the trade in the plumage of wild birds, giving a brief history of its growth and of the protest and condemnation that have arisen against it. Its main purpose is to disprove various misstatements and allegations put forth by the feather trade defense in their organ 'The Feather Trade.' Among these are: the old story that 'osprey' or aigrette plumes are not feathers at all, thus deceiving thousands of women into buying egret plumes by the false assertion that they were not egret feathers but an artificial product; and, this having been proved false, the story that the plumes sold were moulted feathers 'picked up' by hunters, and that egrets were "protected by law and custom throughout countless miles of the South American continent," while the condition of the country concerned, and the jungles

<sup>1</sup> Feathers and Facts: A Reply to the Feather-Trade, and Review of Facts with Reference to the Persecution of Birds for their Plumage. 8vo, pp. 74. London: Printed for The Royal Society for the Protection of Birds, 23 Queen Anne's Gate, S. W., by Witherby & Co., 326 High Holborn, W. C. Price sixpence.

and swamps where the birds breed, render the enforcement of such a law, even if it really existed, simply impossible.

The pamphlet deals also with the reckless destruction of Hummingbirds, Goura Pigeons, Himalayan Pheasants, Paradise Birds, Lyre Birds, Storks, Pelicans, Grebes, etc., and exposes the false assertions of the feather dealers regarding the limited extent and slight importance of the feather trade in diminishing the numbers of any of these species.

The subject of the prohibition of the importation of plumage and of international laws to prevent it, is also presented at length. The paper has thus a broad scope, and is especially important in its analysis of the feather trade defense. It is a strong document that should have the widest possible circulation.

Another recent brochure dealing with misleading statements of New York milliners engaged in the Heron plume traffic is entitled 'Confessions of a Plume Hunter,' and forms Special Leaflet No. 23 of the National Association of Audubon Societies. It is in the form of a sworn statement, addressed to the Secretary of the Association, by Mr. A. H. Meyer, formerly in business as a plume collector in Venezuela and Colombia for twelve years (1896-1905, inclusive). After citing the fact that certain commercial interests in New York City are circulating stories "to the effect that the aigrettes used in the millinery trade come chiefly from Venezuela, where they are gathered from the ground in the large garzeros or breeding colonies of white herons," he goes on to state, from his own personal knowledge, that "It is the custom in Venezuela to shoot the birds while the young are in the nests," and that after the breeding season the plumes are virtually of no commercial value, "because of the worn and frayed condition to which they have been reduced." A few of the plumes of the large white herons are picked up about their breeding places, but they are of small value and are known as 'dead feathers.'

The impossible stories circulated by the millinery interest in New York are stated to be based on a letter written by "Mayeul Grisol, Naturalist and Explorer of the Honorary Mission of the Museum of Natural History in Paris." The absurdity of these statements led Prof. Henry Fairfield Osborn, President of the American Museum of Natural History in New York, to cable an inquiry to the Paris Museum of Natural History regarding Mayeul Grisol. The reply, dated April 22, 1911, was: "Mayeul Grisol inconnu" — J. A. A.

**Boas on Rooks and on Damage done by them in Denmark.**<sup>1</sup>— The writer treats his subject under the following headings: Food of Rooks; Rooks useful or injurious? How shall we estimate the economic significance of Rooks? Distribution of Rooks in Denmark; Experience with injury by Rooks in Denmark; Summary of damage; Comparison of injuries and benefits; Means against Rooks, and Legislation against Rooks.

<sup>1</sup> Boas, J. E. V. *Raagerne og raageskade i Danmark.* Tidssk. f. Landbrugets Planteavl. XVIII, 1911. Separately paged [1-29], 1 map.

The first three headings cover a discussion of articles on Rooks by Gilmour, Rörig, Schleh, and Hollrung, in which the results of stomach examinations are set forth and commented upon. The distribution of Rooks in Denmark is considered in detail and is illustrated by a map which shows the location of breeding colonies, and also localities where Rooks are definitely reported not to breed. It appears that Rooks are confined to the eastern part of the kingdom.

Seven pages are taken up with the reproduction of letters giving experience with injuries by the Rooks. This testimony is then summarized. The principal damage seems to be to seed grain, potatoes, and turnips. Grain is pilfered from shocks as well as from newly planted fields, and both seed potatoes and the young tubers are dug out and devoured. Although Rooks visit patches of young turnip plants in search of insect larvae they do more harm than good by trampling down and killing the tender seedlings. The birds do minor damage by scratching manure away from plants, by general depredations in out-lying gardens, by stealing cherries, robbing partridge nests, and digging up seeds in forest nurseries.

The author's conclusion is that the Rook is an important injurious species, responsible for an annual loss to the agriculturists of Denmark, which must be reckoned in hundreds of thousands of crowns (crown = 26.8 cents). Some individuals lose thousands of crowns but the loss falls mainly upon the small holders. It is evident, he says, that the Rook is a bird which we must combat.

Among methods of fighting Rooks those recommended as most effective are taking the eggs and young from the nests, and felling trees containing nesting colonies. Shooting through the nests in the evening after the birds have gone to roost also is advised, and the author naively remarks that this is particularly disagreeable to the Rooks. The adults leave and the young die.

The article closes with a section on legislation against Rooks and a bibliography of 17 titles.—W. L. M.

**Huntington's 'Our Wild Fowl and Waders.'**<sup>1</sup>—It is apparent to all who have given much thought to the matter, that there can be but one ultimate result of the time-worn American system of protecting game only by restrictive legislation, and that result is extermination of the game. Of what avail is it to shorten the season or to reduce the bag limit, when the number of hunters greatly increases every year? Manufacturers of guns and ammunitions expend fortunes in extending their business, but they as well as the gunners themselves must be made to realize that there is a limit to the increase of hunting. If they push blindly forward to that limit, both business and sport, insofar as they depend on the existence of game birds, will vanish.

<sup>1</sup> Huntington, D. W. *Our Wild Fowl and Waders*. Amateur Sportsman Co., New York. Dec., 1910. 207 pp.

Of earlier origin than any system of game laws is the idea that wild life may freely be drawn upon at either the need or the pleasure of man. Savages secure a great part of even their vegetable food from nature, but how shiftless a man would be considered who would depend upon the same source now. The early settlers of America found game in apparently inexhaustible abundance, and naturally used it freely. The idea has largely persisted that we have a right to take game at any time for food, but this fallacy should be as apparent as the older one of depending upon wild vegetable products. The mere acceptance of the civilized state carries with it the principle that one has no right to food which he has not helped (either directly or by equivalent) to produce.

A very high percentage of the shooting of North American wild fowl and waders is in no wise necessary to supply food (the shooters being chiefly overfed rather than the reverse). Being undertaken solely in the name of sport, the disastrous effects of this gunnery upon the game birds, and the practical failure of the sportsmen to do anything toward the increase and preservation of birds are wholly inexcusable.

Mr. Huntington points out the hopelessness of game laws to restore game, shows how the restriction of the best breeding grounds for ducks makes it impossible for them to bear up under the increasing slaughter, and devotes most of his pages to instructions for making game locally abundant, by which means the utter extinction of many species can be prevented. The author terms his book the first "for American readers on the practical conservation of game. It deals with the methods of propagation and preservation which are essential to make game abundant and keep it plentiful in places where field sports are permitted."

Mr. Huntington drew his inspiration, he tells us, from the discovery of English game keepers that "the wild duck could be preserved and made abundant for sport and for profit by the hand-rearing process, which was known to work well with pheasants and other game.... More than ten thousand ducks were reared in a season at Netherby Hall, and the skilled gamekeeper who achieved this remarkable success proved that big bags of ducks can be shot safely every season." This success has already been approached on American preserves. The author thinks that "the breeding of wild ducks should interest the farmers as well as the sportsmen, since so many small swamps and waste places can be utilized for profit."

A chapter is devoted to a general consideration of ducks, geese and swans, in which is pointed out the adaptability of the various species to artificial propagation. The following rather lengthy chapter gives evidence of the practicability of rearing large numbers of ducks in an essentially wild state and describes some successful preserves. It is shown that wild ducks will breed in close proximity to some of the most disturbing features of civilization, if only their little home shelter is secure. Freed from meddling they go along contentedly with their family cares in the most unlikely places. The best types of ponds, cover and fencing are described. The following American game farms are mentioned: Oak

Park, Ill.; Yardley, Pa.; Clifton Forge, L. I.; Hudson Highlands, N. Y.; and Chincoteague Island, Va. Stock can be secured from these and from English preserves.

Rather scanty information on the natural foods of wild ducks was available to the author, but the addresses of the principal dealers in the better known plants are given, as is also an interesting letter from Dr. R. V. Pierce, who has experimented extensively with the propagation of aquatic plants which are eaten by ducks. Many of the scientific names in this chapter are misspelled, and in discussing publications of the Bureau of Plant Industry, on wild rice, the unguarded statement is made that "It seemed hardly worth while for one department of the Government to issue expensive bulletins telling the people how to produce foods for breeders when another department was actively interested in game laws prohibiting such industry." This statement is negatived by a later one (p. 160) concerning "the profitable increase of game by breeders" which is as follows: "The Bureau of Biological Survey of the U. S. Department of Agriculture favors such legislation, and it seems probable that the laws soon will be amended so as no longer to prevent the profitable increase of a desirable food."

The most interesting part of the book of course is that dealing with the artificial rearing of wild ducks. The provision of suitable nesting places and the fencing out of ground vermin are mentioned among the essentials. Eggs are taken from the ducks until one or two clutches are obtained from each. These are placed under hens which are cared for in a hatching house lined with row upon row of nest boxes. About 20 to 33 eggs are laid by each duck in a season, although 119 have been laid by two ducks which were given an abundance of animal food. The ducks after furnishing 15 to 20 eggs are themselves allowed to lay and incubate a clutch. It has been found that duck eggs require a considerable supply of moisture; they are sprinkled daily and the nest is saturated just before hatching time. For this reason artificial incubators have not found favor, but the author worked out a method by which at least one satisfactory hatch was accomplished.

The young ducks thrive best when fed upon a meal containing a proportion of animal food. They are fed this meal until they are two to three weeks old, an increasing quantity of cracked corn being added as they grow older. The young are not taken to water until seven to eight weeks old, a thorough wetting earlier usually having very bad effects.

After turning out where natural food is abundant only one meal a day is required. This should be given at an established feeding place on the water side, which is fenced against vermin. The ducks will then regard this spot as a refuge, and make it headquarters for their excursions to the surrounding country. They quickly learn to come to meals on signal, and although becoming tame as barnyard fowl on their familiar feeding grounds they are timid and wary when visiting other places.

This behavior is analogous to that of wild birds in certain of our public

parks, as at New York, Boston, and San Francisco, or such localities as Lake Worth, Fla., where certain areas are sanctuaries. So eager for protection and appreciative are the ducks, that such refuges should be made in all parts of the country.

The book fairly bristles with admonitions to keep down vermin, which is defined as "the natural enemies of game birds collectively." The term is very indefinite therefore and must be interpreted according to the prejudices of the gamekeeper concerned. Chapters are given on the natural enemies, collectively, on winged vermin and ground and water enemies. These categories include eagles, crows, hawks, gulls, owls, English sparrows, magpies and jays, the fox, coyotes, minks, weasels, raccoons, skunks, cats, rats, snakes, moles, turtles and fishes. The worst are thought to be the crow, fox, mink, weasel, cats and rats. Carp are mentioned as destroyers of duck food.

Although vermin are given too much importance in the book, the author himself evidently holds very reasonable views on the subject. It is only to be feared that these are buried in such a mass of charges against vermin that their effect will be lost. Mr. Huntington says: "The naturalists are right no doubt in saying that many species of vermin are beneficial and that they do not do as much harm as some gamekeepers imagine they do. Laws, however, which prohibit the killing of game enemies should not apply to game farms and preserves." It should be added, nor should bird protection laws of any kind fail to provide for the relief of property manifestly being damaged. The author well says that "it would be quite as logical to say that the shepherd must not kill the wolves as it is to say that the breeder of game must not control the enemies which kill his game." The matter should, however, be the subject of sufficient supervision to prevent abuses.

"The idea that it is not necessary or desirable to exterminate all vermin seems to be gaining ground.... A good rule to follow is to control the natural enemies of game only when they appear to be doing serious damage. A hawk trap recently has been invented in England which captures the hawks alive. The hawks which do very little damage and which are regarded as beneficial birds can be released."

Methods of destroying various pests are given, the principal one recommended for birds being use of a decoy owl and shooting from a blind. A gamekeeper at Oak Park, Ill., killed 2,410 crows in one season.

Mr. Huntington says: "The reader will find the hawks discussed at length in a bulletin issued by the United States Department of Agriculture, but in reading it he should remember that the conclusions stated are founded largely upon stomach examinations and that such evidence is not always reliable"; and adds in a footnote: "The marsh hawk is classed as a beneficial hawk by ornithologists but I shot one which had a quail in its talons as it flew overhead." Here is the old, old mistake of allowing an isolated individual observation to weigh heavily against a careful estimate formed after consideration of all the available information, to-

gether with the results of an investigation planned especially to bring out all the facts in the case. The insinuation is made that results founded upon stomach examination are essentially unreliable. The fact is that this method was adopted and is maintained principally because of the glaring insufficiency and incorrectness of field observations. It must be remembered that, given a sufficient number of stomach contents, evenly distributed chronologically and geographically, we have evidence, more exact than is obtainable in any other way, of the usual subsistence and hence of the economic significance of a species. The fact that a stomach examination reveals the nature only of a single meal, is of no importance, when a dozen or more stomachs are often collected in the same locality at about the same time.

Gamekeepers should not be too quick to disregard the findings of economic ornithologists as to the value of hawks, owls and other birds, especially as some of their worst vermin, as rats, snakes, etc., are customary food of these birds.

Mr. Huntington points out the availability of the grounds of many established ducking clubs for the purpose of propagating game, and suggests that the clubs take up the work both for their own welfare and the preservation of game birds as a group. Suggestions as to the formation of duck propagating clubs or syndicates are given, together with estimates of expenses.

A chapter entitled "The restoration of wild fowl" discusses the use of decoys for luring wild birds to ponds, and the most judicious shooting of the wild birds. It would bear more becomingly the title "The destruction of wild fowl." Description of the methods of shooting followed on preserves, so as not to drive away the ducks, nor impair the breeding nucleus, forms the subject of another chapter.

The diseases also of wild ducks are discussed and a letter on the subject from the chief of the Bureau of Animal Industry shows that the great Bear River, Utah, epidemic was coccidiosis, a result agreeing with those reached in all previous scientific investigations of epidemics among ducks in the United States.

A special chapter on propagating wild geese gives the experience of Mr. Whealton of Chincoteague Island, Va., and Mr. Warren R. Leach of Iowa (?). The shorebirds are briefly mentioned as profiting by the protective measures employed on duck preserves.

Mr. Huntington's share of the book closes with arguments for legislation favorable to game farming, and with the text of a proposed law for breeders.

An appendix contains accounts by Prof. W. W. Cooke of the distribution and migration of the principal game ducks.—W. L. M.

**Papers on Tick-eating Birds.**—Dr. A. Fredholm publishes in Trinidad,<sup>1</sup> the observations<sup>2</sup> of Newstead on the natural enemies of ticks in

<sup>1</sup> Proc. Agr. Soc. Trinidad. X. Part 7, July, 1910, pp. 258-263.

<sup>2</sup> Bull. Jamaica Dept. Agr., Vol. I, No. 3, April, 1910, pp. 161-165.

Jamaica, which have previously been reviewed.<sup>1</sup> Mr. D. W. May in an article<sup>2</sup> on Cattle in the West Indies, mentions a blackbird of Porto Rico that follows the cattle about and picks the ticks off of them. He says: "I have seen them grasping the tail with both feet and feeding upon the ticks infesting the hind quarters of the animal. They will also stand upon the ground beneath the animal and jump up picking ticks, getting one at each hop. To this bird is largely due the fact that in our fields ticks are not so plentiful as in the Southern States." This bird undoubtedly is *Quiscalus brachypterus*, the species mentioned by Bowdish<sup>3</sup> as feeding on vermin on cattle near Mayaguez.—W. L. M.

**Grinnell on 'The Linnet of the Hawaiian Islands.'**<sup>4</sup>—The paper is an important discussion of color as found in the *Carpodacus mexicanus* group of birds, and the principal facts on which it is based are summarized in the following quotation: "A series of male Linnets collected in the Hawaiian Islands in 1910 are all of the yellow or orange type of coloration. The Linnet of the Hawaiian Islands is known to be of exotic origin. It is believed to have been introduced less than forty years ago, the imported individuals having been obtained in the vicinity of San Francisco, California, where the common *red* type is known to have prevailed ever since birds have been observed in the region, a period of sixty years at least."

For an explanation of the color variations, the author inclines to the latest biological theories as shown by citation of another paragraph, viz.: "A deficiency in capacity, of the germ, for the formation of the appropriate enzyme may have been intensified through close breeding until the condition was reached where the amount of enzyme produced in the feather anlage is insufficient to carry on oxidation of tyrosin beyond the yellow, or at farthest, the orange stage." He admits that "the explanation offered is tentative to the last degree," but what is more surprising is that he virtually excludes food as a possible factor in producing these results.—J. D., Jr.

**Grinnell on 'The Modesto Song Sparrow.'**<sup>5</sup>—If this new form, *Melospiza melodia mailliardi*, takes rank with its predecessors it will bring the number of recognized races up to twenty-one. The form *heermannii* once occupied alone the central valleys of California, where now there are several aspirants of which this is the newest.—J. D., Jr.

<sup>1</sup> Auk, XXVIII, Jan., 1911, p. 136.

<sup>2</sup> Porto Rico Hort. News, III, No. 4, April, 1910, p. 59.

<sup>3</sup> Auk, XX, Jan., 1903, p. 13.

<sup>4</sup> The Linnet of the Hawaiian Islands: A Problem in Speciation. By Joseph Grinnell, Univ. of California Pub. in Zoöl., Vol. VII, No. 4, pp. 179-195.

<sup>5</sup> The Modesto Song Sparrow. By Joseph Grinnell. Univ. of California Pub. in Zoöl., Vol. VII, No. 5, pp. 197-199.

**Publications Received.**—**Bangs**, Outram. (1) A New Race of the Pileated Woodpecker. (Proc. New England Zoöl. Club, IV, pp. 79, 80, April 2, 1910.) (2) A New Gallinule from the Lesser Antilles. (*Ibid.*, pp. 81, 82.) (3) Unrecorded Specimens of two rare Hawaiian Birds. (Proc. Biol. Soc. Washington, XXIII, pp. 67-70, May 4, 1910.) (4) New or Rare Birds from Western Colombia. (*Ibid.*, pp. 71-76.) (5) A new Hummingbird from the Sierra Nevada de Santa Marta, Colombia. (*Ibid.*, pp. 105, 106, June 24, 1910.) (6) A new Tinamou from Lake Titicaca. (*Ibid.*, pp. 107, 108.) (7) Two new Woodpeckers from the Isle of Pines, West Indies. (*Ibid.*, pp. 173, 174, Dec. 29, 1910.) (8) Two new Birds from the Island of Molokai. (*Ibid.*, XXIV, pp. 29, 30, Feb. 24, 1911.) (9) A new Bell-bird from Auckland Island. (*Ibid.*, pp. 23, 24.) (10) A new Fantail from the Chatham Islands. (*Ibid.*, pp. 41, 42.)

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## NOTES AND NEWS.

HENRY A. PURDIE, a Fellow of the American Ornithologists' Union, died in Boston, Mass., March 30, 1911.

Mr. Purdie was not only one of the Founders of the American Ornithologists' Union, but one of the original members of the Nuttall Ornithological Club of Cambridge, which was organized in 1873, to which for many years he rendered devoted service as its secretary, and was for many years a frequent contributor to its 'Bulletin,' and later to its successor 'The Auk.'

By those who knew Mr. Purdie intimately he will ever be most affectionately remembered, for few men were so sincere, conscientious and self-sacrificing in their friendships. His contributions to ornithology had reference mainly to the birds of New England, respecting which he was long recognized as a competent authority. His relations with the members of the Nuttall Club were intimate and sustained until the end. It is hence exceedingly fitting that the President of the American Ornithologists' Union has selected his intimate and life-long friend, Mr. William Brewster, to prepare the memorial of his life and work, to be read at the next Stated Meeting of the Union and published later in 'The Auk.'

GEORGE ERNEST SHELLEY, a Corresponding Member of the American Ornithologists' Union, died in London, November 29, 1910, after a long illness, at the age of 70 years. He was born in 1840, the son of John Shelley of Hants, and a nephew of the famous English poet, P. B. Shelley. He was privately educated in England and at the Lycée de Versailles in France. In 1863 he joined the Grenadier Guards, retiring a few years later with the rank of Captain. Shortly after he was sent by the Government to South Africa as a member of a geological commission to make a survey of that region, but his interests were soon diverted to ornithology, to which he became enthusiastically devoted during the remainder of his life. His first ornithological papers appeared in 'The Ibis' in 1870, and, like most of his numerous subsequent ornithological writings, related to African birds. His principal works are a 'Handbook to the Birds of Egypt' (1872), 'Monograph of the Nectarinidae, or Family of the Sun-birds' (1876-1880), Catalogues of the Families Indicatoridae, Capitonidae, Cuculidae, and Musophagidae, in Volume XIX of the British Museum 'Catalogue of Birds' (1891), and 'Birds of Africa,' the first volume of which appeared in 1896, followed by Volumes II (1900), III (1902), IV (1905), and Part I of Volume V (1906).<sup>1</sup> In 1906, a stroke of paralysis brought

<sup>1</sup> Notices of his 'Birds of South Africa' appeared in this journal as follows: Vol. XVIII, 1901, pp. 122, 123; XIX, 1902, p. 414; XXII, 1905, pp. 228, 332; XXIII, 1906, p. 353.

his labors to a close, leaving this great work unfinished. Arrangements have been made for its completion by our Corresponding Member, Mr. William L. Selater, formerly Director of the South African Museum, and author of the 'Fauna of South Africa.'

From Mr. R. Edgcumbe's biographical notice of Captain Shelley (*Ibis*, April, 1911, pp. 369-376) we take the following tribute to his memory: "Captain Shelley was for many years an active member of the British Ornithologists' Union, and from 1870 to 1894 [1901] made numerous contributions, chiefly on African birds, to the pages of 'The Ibis' [and to the 'Proceedings' of the London Zoological Society], as will be seen by our List of his principal publications. He possessed great natural abilities, with something of that genius which has made the family-name famous. Gifted as he was by nature, he might have turned his mind to anything, and would have made his mark in almost any direction. He possessed a wonderful memory, an infinite capacity for taking pains, and a facility for literary expression, attributes in which he resembled his celebrated uncle, the Poet. In youth he strongly resembled the Poet in personal appearance.... To the last hour of life Captain Shelley was distinguished by that inborn gentleness, modesty, and courteous bearing which constitute, in the highest sense, the well-born gentleman....

"In 1889, Captain Shelley married Janet, daughter of the late Mr. E. Andrewes, who, with two sons and a daughter, survives him."

DR. GUSTAV EDLER VON HAYEK, a Corresponding Member of the American Ornithologists' Union, died at his home in Vienna on January 9, 1911, in the 76th year of his age. He was born at Brünn in 1836, and on completing his studies at Vienna entered the navy, serving for a time as ensign. On leaving the navy in 1863, he took up the study of natural history under Hyrtl, Brühl, Hochstetter and Kornhüher, later becoming Kornhüher's assistant, and, in 1869, Professor in the then newly established Realgymnasium, which position he continued to fill till the year 1900, when he retired and was pensioned.

In 1880 he took charge of the Ornithologische Verein in Vienna, of which Crown Prince Rudolf was patron. At the International Ornithological Congress held in Vienna in 1884, the International Ornithological Committee was organized with Dr. von Hayek as chairman, which office he filled for many years.

Dr. von Hayek was also active as an author. Among his best known works are 'Der illustrierte Handatlass aller drei Reiche' and 'Handbuch der Zoologie,' in four volumes. He was honored with the Kriegsmedaille for Kunst and Wissenschaft, and received many foreign decorations, among them French and Russian. His sons are Dr. August Edler von Hayek and Dr. Paul Edler von Hayek.—A. v. H.

DR. CARL PARROT, late president of the Ornithologische Verein in Bayern, and editor of its publications, died at his home in Munich, January

28, 1911, at the age of 44 years. He was born in Castell, Unter-franken, February 1, 1867, the son of a physician. In 1884 he moved with his parents to Munich, where, and in Berlin and Vienna, he studied medicine and became a practising physician. From an early age he was strongly interested in ornithology, to which in his later years he devoted much of his time and energy. He was one of the founders of the Ornithologische Verein München, in 1897, which in 1904 became the present Ornithologische Verein in Bayern, of which he was the first president, filling this office till his death, and also conducting its publications. He was especially interested in bird migration and distribution, and a strenuous supporter of bird protection; he was also an excellent systematic ornithologist, and the author of many important papers on Bavarian ornithology, and on collections of birds from various parts of Asia and elsewhere. The April Heft of the 'Journal für Ornithologie' (LIX Jahrg., pp. 345-350) contains an appreciative sketch of his life and ornithological work by Dr. E. Schnorr V. Carolsfeld, with a portrait and a list of his ornithological writings.

A PROSPECTUS of a work on 'Eggs of Birds breeding in the Netherlands,' by A. A. Van Pelt Lechner, has been issued by the publisher, Martinus Nijhoff, The Hague. The work (also called 'Oologia Nederlandica') will be issued in seven parts of from 30 to 35 plates each, making a total of 191 plates, with 608 colored and 59 uncolored figures. The edition will be limited to 250 copies, of which 100 are in English. A page of text will face each plate. The subscription price is seven guineas. The sample plate (eggs of the Raven) indicates that the illustrations will be well executed.

DR. FREDERIC A. LUCAS, recently Curator of the Museum of the Brooklyn Institute, and formerly in charge of Osteology in the U. S. National Museum, has been made Director of the American Museum of Natural History in New York City, to succeed Professor Hermon C. Bumpus, who recently resigned to accept the position of Business Director at the University of Wisconsin. Dr. Lucas entered upon his duties at the American Museum on June 15.

MR. A. C. BENT, of Taunton, Mass., whose contemplated expedition to the Aleutian Islands has already been announced (*antea*, p. 292), sailed from Seattle, Wash., with several assistants, in the U. S. Revenue Cutter 'Tacoma,' on May 19 for Attu Island. The expedition is well equipped and its summer's work can not fail to make important additions to our knowledge of the fauna and flora of the Aleutian chain.

IN 'The Auk' for April, 1911 (p. 292) mention was made of Dr. Charles H. Townsend's expedition in the 'Albatross' to Lower California, in the

interest of the American Museum of Natural History and other scientific institutions. The work of the expedition was completed about the end of April, and we are greatly indebted to Director Townsend for the following summary of its operations and results.

"During the months of March and April, 1911, the U. S. Steamship 'Albatross' was engaged under my direction, in fishery and hydrographic work in waters adjacent to Lower California. By a fortunate arrangement with the Bureau of Fisheries, a zoölogical and botanical reconnaissance of the coastal region of the Peninsula was made in connection with the usual marine investigations of the vessel.

"The ship carried a scientific staff of eight persons, representing the American Museum of Natural History, the New York Zoölogical Society, the New York Botanic Museum, and the U. S. National Museum. The Naval staff of the Albatross, under Commander Burrage, took an active interest in the shore work and assisted in making the expedition a success in every way.

"In addition to the deep-sea work, which yielded highly satisfactory results, thirty-six anchorages were made along the east and west coasts of Lower California, and the shore collections constitute an important part of the material brought back by the ship.

"The collection of birds alone numbered 655 specimens, representing 127 species and subspecies. Some of these were from Tiburon and other islands in the Gulf of California hitherto unexplored, and coming from new and isolated localities may prove to be undescribed forms. On Tiburon Island 12 species of land birds were secured. Other outlying islands visited were Guadalupe, San Benito, Cedros, and San Roque in the Pacific, and Ceralbo, Espiritu Santo, Santa Cruz, Santa Catalina, San Josef, Carmen, Angel Guardia, and San Esteban in the Gulf.

"The bird collection is large considering the fact that the duration of the cruise was limited to two months, and only a portion of the time could be devoted to shore work. The time at each anchorage was limited to one or two days. The list of birds will soon be augmented by collections expected from one of the party, Mr. Pingree Osborn, who was left at San José del Cabo, to make a trip into the Sierra Laguna Mountains after forms restricted to the Cape Region.

"Among the species of birds obtained, there is a good representation of those peculiar to Lower California and the outlying islands. The electric lights of the ship sometimes aided the bird collectors — eleven specimens of Storm Petrel (*Oceanodroma kædingi*) attracted by the electric lights, were captured on board during the night the ship anchored off Guadalupe Island. Our naturalists did not by any means devote their entire time to birds. The collection of mammals numbered 195 specimens, and of lizards and snakes there were nearly 1000.

The botanical gatherings alone occupied nearly half of the special freight car to which the ship's load was transferred at San Francisco.

"A large collection of fishes and invertebrates was obtained along shore,

while the deep-sea dredgings, carried out to depths of 1760 fathoms (2 miles), were rich in new and interesting forms. Among the more striking products of the cruise for museum purposes, were the numerous plaster casts made of deep-sea fishes. The most picturesque feature was the re-discovery at Guadelupe Island of the supposed extinct elephant seal. Three males, each 16 feet long, were killed, and six yearlings were shipped alive to the New York Aquarium. Moving rapidly from point to point as we did, the ornithological and other shore work could not be carried very far inland, nor could the work of collecting be made as thorough as was desirable. The naturalists however made the best possible use of each day ashore, and slept comfortably on board at night while the ship was under way to the next anchorage."

MR. FRANK M. CHAPMAN, Curator of Birds in the American Museum of Natural History, who, with Mr. Louis Agassiz Fuertes and Mr. Leo Miller, sailed from New York City for Colombia on March 13 (see *antea*, p. 291), returned on June 15. He landed at Buenaventura, on the west coast of Colombia, on March 24, where he connected with Mr. W. B. Richardson, who had for some months been collecting for the Museum on the west slope of the coast range. The first camp was established on the summit of the coast range, and here material was collected for a Habitat Group, illustrating the bird life of the humid forests, and showing, in the background, the Cauca Valley and the central range of the Andes. The second camp was made in the Cauca valley near Palmira. From this point the expedition ascended the main chain of the Andes, returning thence to other points in the Cauca Valley, and finally to Cali, which formed the base of operations. On May 13, Mr. Richardson, with Mr. Leo Miller, as assistant, was despatched southward to the vicinity of Popayan, while Mr. Chapman and Mr. Fuertes went down the Cauca River to Cartago, thence across the central range of the Andes to Giradot on the Magdalena. The Magdalena was then descended to Barranquilla, and from Barranquilla a short trip was made through the marshes to Santa Marta, from which port a steamer was taken for New York. In addition to collecting material for a Habitat Group, Mr. Chapman's work was designed primarily to be a reconnaissance to secure information which would enable the Museum more effectively to prosecute the biological work it has in view in Western Colombia.

AS PREVIOUSLY announced (*antea*, p. 150), on December 26, 1909, Mr. and Mrs. C. William Beebe left New York for Europe for the purpose of studying the pheasants, pea-fowl and jungle fowl in Asia and the East Indies. This undertaking, known as the Kuser Asiatic Pheasant Expedition under the auspices of the New York Zoological Society, was initiated and financed by Col. Anthony R. Kuser. The work has now been successfully completed after seventeen months spent in the field. The itinerary covered Ceylon, the Eastern and the Western Himalayas, the

plains of India, Burma, Yunnan, the Malay States, Java, Borneo, Eastern and central China, and Japan.

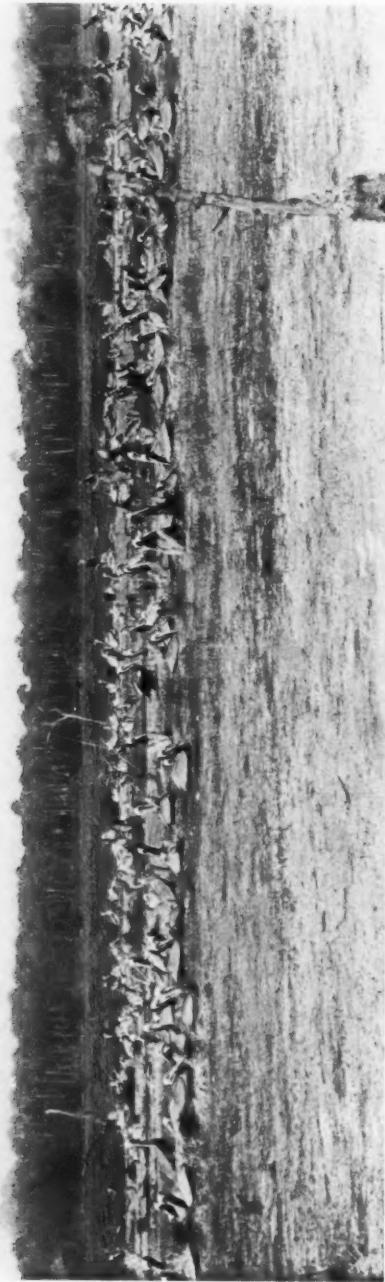
The results of the expedition will be published by the Zoölogical Society in a comprehensive monograph. The success attained may be judged by the fact that of twenty-two genera previously chosen for investigation, every genus was found and studied in the field. Over twenty-five hundred photographs, many eggs and young birds, and large series of adult pheasants were brought back.

Two important generalizations are, first, the rapidity with which many species are being reduced in numbers or actually exterminated, and, second, the many instances of remarkable variation in color and pattern of individual pheasants from a single locality.

THE BILL introduced by Senator Bayne at the present session of the Legislature of the State of New York, absolutely prohibiting the sale of game birds in this State, has passed both houses by very large majorities and has become a law by the signature of the Governor. It had the support of sportsmen's and game protective associations throughout the State, as well of the National Association of Audubon Societies and of the New York State Audubon Society. It will thus not only protect the game birds of this State, but prohibit the sale here of game birds killed in other States, for which New York City has heretofore afforded such a tempting market.

Efforts to repeal the law prohibiting spring shooting of wild fowl on Long Island were fortunately defeated, as was the attempt to repeal the 'Plumage Bill' enacted in 1910.





OLD PELICAN ISLAND, FLORIDA, 1909.

The trees in the background are on the 'Peninsula,'  $\frac{1}{4}$  mile from the Island.